

Access DB# 84582**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: DR. NG, DVC Examiner #: 69332 Date: 1/16/03  
Art Unit: 1711 Phone Number 308-2437 Serial Number: 09/989 858  
Mail Box and Bldg/Room Location: 3/4529 Results Format Preferred (circle): PAPER DISK E-MAIL  
4035

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*  
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: \_\_\_\_\_

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Formulas (I) (II) and (III). Thanks-

(Most of the art involves CC1=CC=CC=C1 but towards the end of the printout there is a section involving the remaining other types of compounds.)

## STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>ED</u>	NA Sequence (#) _____ STN <u>\$458.67</u>	
Searcher Phone #: _____	AA Sequence (#) _____	
Searcher Location: _____	Structure (#) <u>(2) (subset)</u>	
Date Searcher Picked Up: _____	Bibliographic <u>(and)</u>	
Date Completed: <u>1-17-03</u>	Litigation _____	
Searcher Prep & Review Time: <u>10</u>	Fulltext _____	
Chemical Prep Time: _____	Patent Family _____	
Online Time: <u>95</u>	Other _____	

=> file reg

FILE 'REGISTRY' ENTERED AT 11:37:23 ON 17 JAN 2003  
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L1 FILE 'LREGISTRY' ENTERED AT 08:22:09 ON 17 JAN 2003  
STR

L2 FILE 'REGISTRY' ENTERED AT 08:29:34 ON 17 JAN 2003  
42 S L1

L3 FILE 'LREGISTRY' ENTERED AT 08:32:32 ON 17 JAN 2003  
STR L1

L4 FILE 'REGISTRY' ENTERED AT 08:33:42 ON 17 JAN 2003

41 S L3

L5 687 S L3 FUL

SAV L5 TRU858/A

L6 211 S L5 AND PMS/CI

E METHYL SULFONIC ACID/CN

E METHYLSULFONIC ACID/CN

L7 1 S E3

E ETHYLSULFONIC ACID/CN

L8 1 S E3

E N-PROPYLSULFONIC ACID/CN

E PROPYLSULFONIC ACID/CN

E N-PROPANE, 1-SULFONIC ACID/CN

L9 FILE 'HCA' ENTERED AT 08:38:02 ON 17 JAN 2003

1742 S PROPANESULFONIC#(2A)ACID#

L10 1188 S (PROPANESULFONIC#(2A)ACID#)/IT

FILE 'REGISTRY' ENTERED AT 08:39:25 ON 17 JAN 2003

E 1-PROPANESULFONIC ACID/CN

L11 1 S E3

E 1-BUTANESULFONIC ACID/CN

L12 1 S E3

E BENZENESULFONIC ACID/CN

L13 1 S E3

E P-TOLUENESULFONIC ACID/CN

L14 1 S E3

L15 6 S L7 OR L8 OR L11 OR L12 OR L13 OR L14

FILE 'HCA' ENTERED AT 08:44:06 ON 17 JAN 2003

L16 1170 S L6

L17 1255 S L5

L18 303537 S L15 OR ?SULFONIC? OR ?SULPHONIC? OR ?SULFONAT? OR ?SULP

L19 433 S L16 AND L18  
L20 449 S L17 AND L18  
L21 17419 S L15  
L22 26 S L16 AND L21  
L23 28 S L17 AND L21  
L24 21 S L22 AND (35 OR 36 OR 37 OR 38)/SC,SX  
L25 22 S L23 AND (35 OR 36 OR 37 OR 38)/SC,SX  
L26 21 S L24 AND L25

FILE 'LCA' ENTERED AT 08:50:02 ON 17 JAN 2003

L27 32136 S (PRODUC? OR PROD# OR GENERAT? OR MANUF? OR MFR# OR CREA  
L28 1 S L27(2A) (POLY(2A)THIOPHENE# OR POLYTHIOPHENE#)

FILE 'HCA' ENTERED AT 08:54:23 ON 17 JAN 2003

L29 354 S L6/P  
L30 108 S L29 AND L18  
L31 12 S L29 AND L21  
L32 105 S L16 AND L28  
L33 106 S L17 AND L28  
L34 34 S L32 AND L18  
L35 34 S L33 AND L18  
L36 4 S L34 AND L21  
L37 4 S L35 AND L21

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L38 STR L3

FILE 'REGISTRY' ENTERED AT 09:19:46 ON 17 JAN 2003

L39 36 S L38 SSS SAM SUB=L5  
L40 582 S L38 SSS FUL SUB=L5  
SAV L40 TRU858A/A  
L41 192 S L40 AND L6

FILE 'HCA' ENTERED AT 09:24:01 ON 17 JAN 2003

L42 1159 S L41  
L43 433 S L42 AND L18  
L44 26 S L43 AND L21  
L45 345 S L41/P  
L46 108 S L45 AND L18  
L47 12 S L46 AND L21  
L48 102 S L42 AND L28  
L49 34 S L48 AND L18  
L50 4 S L49 AND L21

FILE 'LCA' ENTERED AT 09:34:03 ON 17 JAN 2003

L51 QUE OXIDI? OR OXIDA? OR OXIDN#  
L52 26 S (PHASETRANSFER? OR PHAS?(2A)TRANSFER?) (3A) (CAT# OR CATA

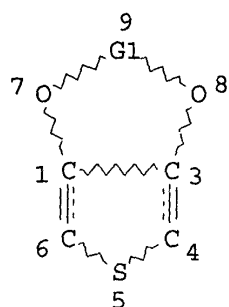
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L53 1 S L17 AND L18 AND L51 AND L52  
L54 108 S L17 AND L18 AND L51  
L55 1 S L17 AND L18 AND L52

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L56          9 S L54 AND L21
L57        404 S L5/P
L58          67 S L54 AND L57
L59          13 S L54 AND L28
L60          12 S L58 AND L59
L61           5 S L36 OR L37 OR L50 OR L53 OR L55
L62          20 S (L31 OR L47 OR L56 OR L60) NOT L61
L63          14 S (L22 OR L23 OR L24 OR L25 OR L26 OR L44) NOT (L61 OR L6
L64          19 S (L34 OR L35 OR L49) NOT (L61 OR L62 OR L63)
    
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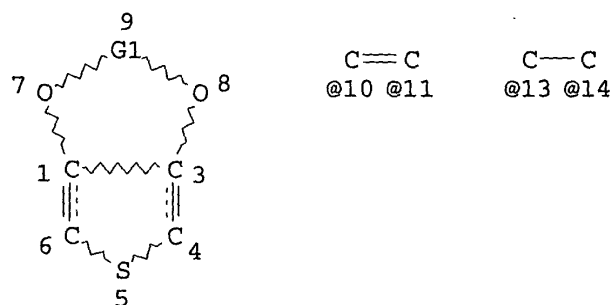
=> d 140 que stat  
L3 STR



REP G1=(1-10) C  
NODE ATTRIBUTES:  
CONNECT IS E2 RC AT 5  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE  
L5 687 SEA FILE=REGISTRY SSS FUL L3  
L38 STR



VAR G1=10-7 11-8/13-7 14-8

NODE ATTRIBUTES:

CONNECT IS E2 RC AT 5

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE

L40 582 SEA FILE=REGISTRY SUB=L5 SSS FUL L38

100.0% PROCESSED 687 ITERATIONS

582 ANSWERS

SEARCH TIME: 00.00.01

=> file hca

FILE 'HCA' ENTERED AT 11:39:03 ON 17 JAN 2003

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

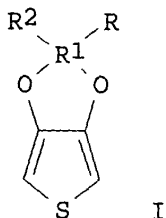
COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY (ACS)

=> d l61 1-5 cbib abs hitstr hitind

L61 ANSWER 1 OF 5 HCA COPYRIGHT 2003 ACS

136:402224 Preparation of polythiophenes with ready solubility or dispersibility. Kirchmeyer, Stephan; Wussow, Klaus; Jonas, Friedrich; Elschner, Andreas (Bayer AG, Germany). Ger. Offen. DE 10058116 A1 20020523, 8 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2000-10058116 20001122.

GI



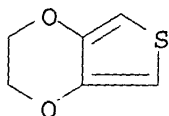
AB The title polythiophenes (I; R1= C1-C10-alk(en)ylene; R, R2 = H, OH, linear or branched alkyl, O-C1-C18-alkyl) are prepd. in anhyd. solvents or solvents with low water content. The reaction mixt. contains a compd. with one or more **sulfonic** acid groups, at least one **oxidizing** agent, at least one **phase**

-**transfer catalyst**, and one or more catalysts in an anhyd. solvent or a solvent contg. only small amts. of water. The polythiophenes can be used for the manuf. of conductive and antistatic coatings.

IT **126213-51-2P**, 3,4 Ethylenedioxythiophene homopolymer  
(prepn. of polythiophenes with ready soly. or dispersibility)  
RN 126213-51-2 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

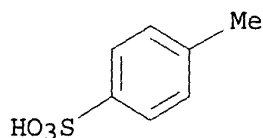
CRN 126213-50-1  
CMF C6 H6 O2 S



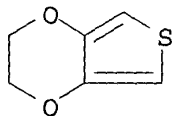
IC ICM C08G061-12  
ICS C09D141-00; C09D005-02; C09D005-24; H05K001-09  
CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 42  
ST manuf polythiophene **phase transfer catalyst** anhyd solvent conductive coating  
IT **Phase transfer catalysts**  
(crown ethers; in prepn. of polythiophenes with ready soly. or dispersibility)  
IT Quaternary ammonium compounds, uses  
(**phase transfer catalysts**; in prepn. of polythiophenes with ready soly. or dispersibility)  
IT Polymerization **catalysts**  
(**phase-transfer**; for **oxidative** in prepn. of polythiophenes with ready soly. or dispersibility)  
IT 50851-57-5, **Polystyrenesulfonic acid**  
(in prepn. of polythiophenes with ready soly. or dispersibility)  
IT 7727-21-1 7727-54-0 114504-10-8, Iron(iii) tris(**toluenesulfonate**)  
(**oxidn.** agent; in prepn. of polythiophenes with ready soly. or dispersibility)  
IT 7775-27-1, Sodium peroxodisulfate  
(**oxidn.** agent; prepn. of polythiophenes with ready soly. or dispersibility)  
IT 17455-13-9, 18-Crown-6  
(**phase transfer catalyst**; in prepn. of polythiophenes with ready soly. or dispersibility)  
IT **126213-51-2P**, 3,4 Ethylenedioxythiophene homopolymer  
(prepn. of polythiophenes with ready soly. or dispersibility)

L61 ANSWER 2 OF 5 HCA COPYRIGHT 2003 ACS

- 130:275296 Solid electrolytic capacitor and its manufacture method. Kobayashi, Atsushi; Araki, Kenji; Fukami, Takashi (Nec Corp., Japan). Jpn. Kokai Tokkyo Koho JP 11097296 A2 19990409 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-258595 19970924.
- AB The capacitor contains an elec. conductive polymer solid electrolyte manufd. by chem. oxidn. polymn. using a polymn. system contg. a cation as a monomer and an oxidant and an anion as a dopant, in which the system contains larger amts. of the anion than the cation. The manuf. method involves forming an elec. conductive polymer compd. layer as the electrolyte from the system. The capacitor with high ESR (equiv. series resistance) and heat resistance can be manufd. by the method.
- IT 104-15-4, Toluene **sulfonic** acid, uses  
(dopant; formation of elec. conductive polymer electrolyte for solid electrolytic capacitor)
- RN 104-15-4 HCA
- CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



- IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene)  
(**formation** of elec. conductive polymer electrolyte for solid electrolytic capacitor)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S



- IC ICM H01G009-028
- CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 38
- IT 104-15-4, Toluene **sulfonic** acid, uses 1330-69-4,  
Dodecylbenzene **sulfonate**  
(dopant; formation of elec. conductive polymer electrolyte for solid electrolytic capacitor)
- IT 25067-54-3P, Polypyrrole 25233-30-1P, Polyaniline 25233-34-5P,

**Polythiophene** 30604-81-0P 126213-51-2P,  
Poly(3,4-ethylenedioxythiophene)  
(**formation** of elec. conductive polymer electrolyte for  
solid electrolytic capacitor)

L61 ANSWER 3 OF 5 HCA COPYRIGHT 2003 ACS

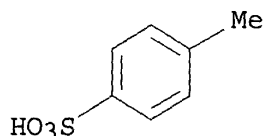
130:89401 Solid electrolytic capacitor having double layer polymer electrolyte and its manufacture. Mitsui, Koichi; Yoshimi, Motohiro (Nichicon Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10321472 A2 19981204 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-132427 19970522.

AB The capacitor has a double layer electrolyte comprising a polythiophene (deriv.) layer as the 1st layer and an electrolytically polymd. polyaniline (deriv.) layer as the 2nd layer. The capacitor is manufd. by a process including (1) soln. chem. polymn. of thiophene-type monomer in an aq. solvent or (2) heating of an aq. solvent soln. of **polythiophene** (deriv.) for **formation** of the 1st layer. The capacitor with large capacity and good frequency characteristics, even if the elements are made of powders, can be obtained by the process.

IT 104-15-4, p-Toluenesulfonic acid, uses  
(dopant; manuf. of solid electrolytic capacitor having double layer polymer electrolyte)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2P  
(doped, electrolyte; manuf. of solid electrolytic capacitor  
having double layer polymer electrolyte)

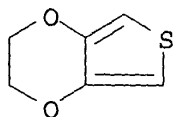
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

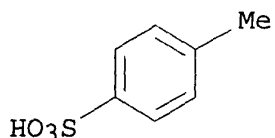
CMF C6 H6 O2 S



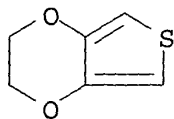
IC ICM H01G009-028



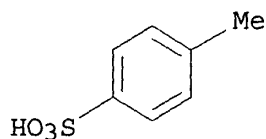
- CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 35, 38
- IT 104-15-4, p-Toluenesulfonic acid, uses  
7664-93-9, Sulfuric acid, uses  
(dopant; manuf. of solid electrolytic capacitor having double  
layer polymer electrolyte)
- IT 25233-30-1P, Polyaniline 126213-51-2P  
(doped, electrolyte; manuf. of solid electrolytic capacitor  
having double layer polymer electrolyte)
- L61 ANSWER 4 OF 5 HCA COPYRIGHT 2003 ACS
- 130:89400 Solid electrolytic capacitor having double layer polymer  
electrolyte and its manufacture. Mitsui, Koichi; Yoshimi, Motohiro  
(Nichicon Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10321471 A2  
19981204 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
1997-132426 19970522.
- AB The capacitor has a double layer electrolyte comprising a  
polythiophene (deriv.) layer as the 1st layer and an  
electrolytically polycond. polypyrrole (deriv.) layer as the 2nd  
layer. The capacitor is manuf. by a process including (1) soln.  
chem. polymn. of a thiophene-type monomer in an aq. solvent or (2)  
heating of an aq. solvent soln. of **polythiophene** (deriv.)  
for **formation** of the 1st layer. The capacitor with large  
capacity and good frequency characteristics, even if the elements  
are made of powders, can be obtained by the process.
- IT 104-15-4, p-Toluenesulfonic acid, uses  
(dopant; manuf. of solid electrolytic capacitor having double  
layer polymer electrolyte)
- RN 104-15-4 HCA
- CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



- IT 126213-51-2P  
(doped, electrolyte; manuf. of solid electrolytic capacitor  
having double layer polymer electrolyte)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S

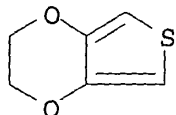


- IC ICM H01G009-028  
 CC 76-10 (Electric Phenomena)  
 Section cross-reference(s): 35, 38  
 IT **104-15-4**, p-Toluenesulfonic acid, uses  
 25155-19-5, **Naphthalenesulfonic acid**  
 (dopant; manuf. of solid electrolytic capacitor having double  
 layer polymer electrolyte)  
 IT 30604-81-0P, Polypyrrole **126213-51-2P**  
 (doped, electrolyte; manuf. of solid electrolytic capacitor  
 having double layer polymer electrolyte)
- L61 ANSWER 5 OF 5 HCA COPYRIGHT 2003 ACS  
 130:19712 Solid electrolytic capacitor with bilayer polymer electrolyte  
 layer and its manufacture. Mtsui, Koichi; Mizuguchi, Takashi  
 (Nichicon Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10284351 A2  
 19981023 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
 1997-90471 19970409.
- AB The capacitor, comprising a valve-metal anode and a dielec. oxide  
 coating film, is coated with the 1st (base) **polythiophene**  
 (deriv.) layer **formed** by polymn. and the 2nd (top)  
 polyaniline (deriv.) layer formed by polymn. or casting. The  
 capacitor showed excellent impedance characteristics and less  
 current leak.
- IT **104-15-4**, p-Toluenesulfonic acid, processes  
 (dopant; manuf. of solid electrolytic capacitor with bilayer  
 polyelectrolyte layers of polythiophene and polyaniline)
- RN 104-15-4 HCA  
 CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



- IT **126213-51-2P**  
 (manuf. of solid electrolytic capacitor with bilayer  
 polyelectrolyte layers of polythiophene and polyaniline)
- RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
 NAME)

CRN 126213-50-1  
CMF C6 H6 O2 S



IC ICM H01G009-028  
CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 38  
IT **104-15-4**, p-Toluenesulfonic acid, processes  
7664-93-9, Sulfuric acid, processes  
(dopant; manuf. of solid electrolytic capacitor with bilayer  
polyelectrolyte layers of polythiophene and polyaniline)  
IT 25233-34-5, **Polythiophene**  
(manuf. of solid electrolytic capacitor with bilayer  
polyelectrolyte layers of polythiophene and polyaniline)  
IT **126213-51-2P**  
(manuf. of solid electrolytic capacitor with bilayer  
polyelectrolyte layers of polythiophene and polyaniline)

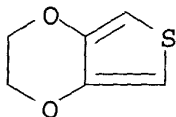
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L62 ANSWER 1 OF 20 HCA COPYRIGHT 2003 ACS  
137:352666 Triphenylamine-substituted polyfluorene-a stable blue-emitter  
with improved charge injection for light-emitting diodes. Ego,  
Christophe; Grimsdale, Andrew C.; Uckert, Frank; Yu, Gang; Srdanov,  
Gordana; Mullen, Klaus (Max-Planck Institute for Polymer Research,  
Mainz, D-55128, Germany). Advanced Materials (Weinheim, Germany),  
14(11), 809-811 (English) 2002. CODEN: ADVMEW. ISSN: 0935-9648.  
Publisher: Wiley-VCH Verlag GmbH.  
AB The authors have made a polymer PTPAF, with bulky hole-transporting  
triphenylamine groups as sidechains, by a simple two-step procedure  
from com. available materials. This polymer not only shows a pure  
blue initial emission with no aggregate/excimer emission, but also  
much improved hole injection over std. PDAFs, thus potentially  
enabling efficient stable blue LEDs to be obtained with-out the need  
for a hole-transporting layer.  
IT **126213-51-2**, PEDOT  
(conductive polymer electrode; triphenylamine-substituted  
polyfluorene as stable blue-emitter with improved charge  
injection for light-emitting diodes)  
RN 126213-51-2 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)

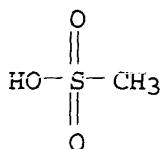
CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IT 75-75-2, **Methanesulfonic acid**  
 (for Friedel-Crafts reaction in conversion to monomer;  
 triphenylamine-substituted polyfluorene as stable blue-emitter  
 with improved charge injection for light-emitting diodes)  
 RN 75-75-2 HCA  
 CN Methanesulfonic acid (8CI, 9CI) (CA INDEX NAME)



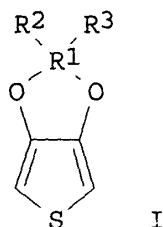
CC 22-13 (Physical Organic Chemistry)  
 Section cross-reference(s): 36, 73  
 IT Band gap  
 Cyclic voltammetry  
 Electric current-potential relationship  
 Electroluminescent devices  
 Friedel-Crafts reaction  
 Luminescence, electroluminescence  
 Molecular weight  
**Oxidation** potential  
 Polydispersity  
 (triphenylamine-substituted polyfluorene as stable blue-emitter  
 with improved charge injection for light-emitting diodes)  
 IT 126213-51-2, PEDOT  
 (conductive polymer electrode; triphenylamine-substituted  
 polyfluorene as stable blue-emitter with improved charge  
 injection for light-emitting diodes)  
 IT 75-75-2, **Methanesulfonic acid**  
 (for Friedel-Crafts reaction in conversion to monomer;  
 triphenylamine-substituted polyfluorene as stable blue-emitter  
 with improved charge injection for light-emitting diodes)

L62 ANSWER 2 OF 20 HCA COPYRIGHT 2003 ACS

137:6916 Preparation and use of dispersible powder of electrically  
 conductive thiophene polymers. Wessling, Bernhard; Kirchmeyer,  
 Stephan; Gehrman, Dietrich (Bayer Aktiengesellschaft, Germany).  
 PCT Int. Appl. WO 2002042352 A2 20020530, 19 pp. DESIGNATED STATES:  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM,  
 HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,

LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2001-EP13390 20011120. PRIORITY: DE 2000-10058118 20001122; DE 2001-10155238 20011109.

GI



AB A dispersible powder of polymer particles (particle size <1 .mu.m) contg. a polymer T with recurring thiophene units and .gtoreq.1 further anionic polymer P, esp. poly(styrene **sulfonic** acid), is (re)dispersible in water and may be used for manuf. of conductive coatings or conductive molding compns. The polymer particles contg. recurring thiophene units were obtained by **oxidative** polymn. of (I; R1 = (substituted) C1-10 alkyl; R2, R3 = H, C1-20 alkyl, OH, O(CH2)3SO3H, or C1-18 O-alkyl), esp. ethylene dioxythiophene in the presence of poly(styrene **sulfonic** acid). Then, 60.6 g of the dispersion was mixed with 240 g toluene for azeotrope distn. (at 84.1.degree.) obtaining a powder residue, which was washed with MeOH and dried. The title product is prepd. by conversion of the polymer dispersion or soln. into a droplet shape esp. by evapg. through a nozzle, freezing and freeze drying. The dispersion or soln. may also be frozen and mech. size reduced before it is freeze dried.

IT **126213-51-2P**, Poly(ethylene dioxythiophene)  
(prepn. of dispersible powder of elec. conductive thiophene polymers)

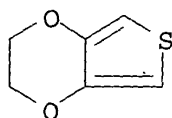
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

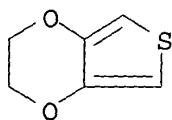
CM 1

CRN 126213-50-1

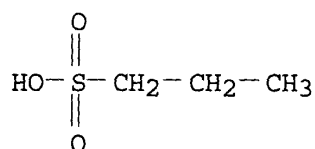
CMF C6 H6 O2 S



- IC ICM C08G061-12  
ICS C08L065-00; C09D005-24; H01B001-12
- CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 38, 42, 76
- ST redispersible polymer powder substituted polythiophene; conductive polymer powder freeze drying redispersible; polystyrene **sulfonic** acid redispersible polymer powder polythiophene; polyethylene dioxythiophene prepn water dispersible elec conductive polymer powder
- IT Conducting polymers  
(**polythiophenes**, substituted; **prepn.** and use of dispersible powder of elec. conductive thiophene polymers)
- IT 50851-57-5, Poly(styrene **sulfonic** acid)  
(prepn. of dispersible powder of elec. conductive thiophene polymers)
- IT **126213-51-2P**, Poly(ethylene dioxythiophene)  
(prepn. of dispersible powder of elec. conductive thiophene polymers)
- L62 ANSWER 3 OF 20 HCA COPYRIGHT 2003 ACS.
- 136:362706 Manufacture of heat-resistant solid electrolytic capacitors by electrolytic polymerization. Ozawa, Masato; Hosokawa, Tomoko (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002134364 A2 20020510, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-326593 20001026.
- AB The manufg. method contains forming a solid electrolyte layer of electroconductive polymers by electrolytic polymn. on a manganese oxide layer on a pos. electrode surface in H2O at an elec. potential lower than that for electrolysis of H2O. A uniform electrolyte layer with reduced impurity content is manufd. with this method.
- IT **126213-51-2P**  
(manuf. of heat-resistant solid electrolytic capacitors by aq. electrolytic polymn.)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S



IT **5284-66-2, 1-Propanesulfonic acid**  
 (pH adjusting agent; manuf. of heat-resistant solid electrolytic capacitors by aq. electrolytic polymn.)  
 RN 5284-66-2 HCA  
 CN 1-Propanesulfonic acid (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



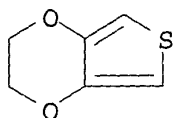
IC ICM H01G009-028  
 ICS H01G009-032  
 CC 76-10 (Electric Phenomena)  
 Section cross-reference(s): 38  
 IT 30604-81-0P, Pyrrole homopolymer **126213-51-2P**  
 (manuf. of heat-resistant solid electrolytic capacitors by aq. electrolytic polymn.)  
 IT **5284-66-2, 1-Propanesulfonic acid** 12788-93-1,  
 Butyl phosphate 25155-19-5, Naphthalene **sulfonic acid**  
 77752-07-9, Propyl phosphate  
 (pH adjusting agent; manuf. of heat-resistant solid electrolytic capacitors by aq. electrolytic polymn.)  
 IT 25155-30-0, Sodium **dodecylbenzenesulfonate** 32072-67-6,  
 Sodium **propylnaphthalenesulfonate**  
 (surfactant; manuf. of heat-resistant solid electrolytic capacitors by aq. electrolytic polymn.)

L62 ANSWER 4 OF 20 HCA COPYRIGHT 2003 ACS

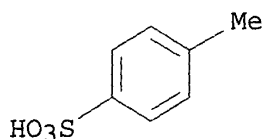
136:302844 Solid electrolytic capacitor and capacitor fabrication.  
 Yoshizawa, Atsushi (Nippon Chemi-Con Corp., Japan). Jpn. Kokai  
 Tokkyo Koho JP 2002110466 A2 20020412, 6 pp. (Japanese). CODEN:  
 JKXXAF. APPLICATION: JP 2000-300967 20000929.

AB In a solid electrolytic capacitor having a conductive polymer electrolyte layer between a pair of electrode foils rolled with a separator, the electrolyte layer comprises a polymer prepd. by attaching a predetd. acid to the separator and carrying out **oxidn.** polymn. of a monomer using an **oxidizing** agent. Specifically, the polymer may comprise polyethylenedioxythiophene, the acid may comprise **paratoluenesulfonic acid**, and the separator may comprise vinylon fibers. The capacitor has a good reflow-soldering property.  
 IT **126213-51-2P, Polyethylenedioxythiophene**

(solid electrolytic capacitor and capacitor fabrication)  
 RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S



IT 104-15-4, uses  
 (solid electrolytic capacitor and capacitor fabrication)  
 RN 104-15-4 HCA  
 CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



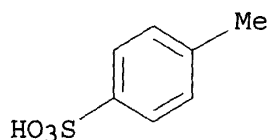
IC ICM H01G009-028  
 ICS C08G061-12; H01G009-02; H01G009-04; H01G009-00  
 CC 76-10 (Electric Phenomena)  
 ST solid electrolytic capacitor polymer electrolyte **oxidn**  
 polymn  
 IT Polymerization  
 (oxidative; solid electrolytic capacitor and capacitor fabrication)  
 IT 126213-51-2P, Polyethylenedioxythiophene  
 (solid electrolytic capacitor and capacitor fabrication)  
 IT 104-15-4, uses  
 (solid electrolytic capacitor and capacitor fabrication)

L62 ANSWER 5 OF 20 HCA COPYRIGHT 2003 ACS  
 136:286562 Process for controlling triboelectric charge of electrographic toner particles. Moffat, Karen A.; McDougall, Maria N. V.; Combes, James R. (Xerox Corporation, USA). U.S. US 6365318 B1 20020402, 50 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-723654 20001128.  
 AB Disclosed is a process which comprises (a) dispersing into a solvent toner particles comprising a resin and an optional colorant, and monomers selected from pyrroles, thiophenes, or mixts. thereof; and (b) causing, by exposure of the monomers to an **oxidant**, **oxidative** polymn. of the monomers onto the toner particles,

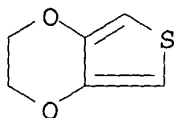


wherein subsequent to polymn., the toner particles are capable of being charged to a neg. or pos. polarity, and wherein the polarity is detd. by the **oxidant** selected.

IT 104-15-4, uses  
(dopant; process of controlling triboelec. charging for toner particles contg.)  
RN 104-15-4 HCA  
CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)

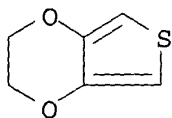


IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene)  
(process of controlling triboelec. charging for toner particles contg.)  
RN 126213-51-2 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 126213-50-1  
CMF C6 H6 O2 S

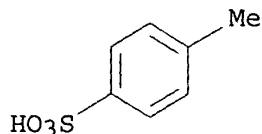


IC ICM G03G009-13  
NCL 430137150  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 35, 38  
ST triboelec charging electrog toner **oxidative** polymn thiophenes  
IT Polymerization  
(**oxidative**; process of controlling triboelec. charging for toner particles)  
IT 104-15-4, uses 3843-16-1, Distearyl dimethyl ammonium methyl sulfate 25155-30-0, SDBS  
(dopant; process of controlling triboelec. charging for toner particles contg.)  
IT 123-03-5, Cetyl pyridinium chloride 7705-08-0, Ferric chloride, uses 7727-54-0, Ammonium persulfate  
(**oxidant**; process of controlling triboelec. charging for toner particles contg.)

- IT 25609-90-9P, Acrylic acid-n-Butylmethacrylate-styrene copolymer  
138511-44-1P, Acrylic acid-butyl acrylate-styrene-sodium  
**styrenesulfonate** copolymer 188407-19-4P  
(process of controlling triboelec. charging for toner particles  
contg.)
- IT 25213-39-2P, n-Butylmethacrylate-styrene copolymer 30604-81-0P,  
Poly(pyrrole) **126213-51-2P**, Poly(3,4-  
ethylenedioxythiophene) 250337-83-8P, 1,3,5-Benzenetricarboxylic  
acid chloride-diethylenetriamine-1,6-hexanediamine-terephthaloyl  
chloride copolymer 259737-85-4P, Poly(3,4-ethylenedioxy-pyrrole)  
406214-42-4P, Diethylenetriamine-1,6-hexanediamine-Isonate 143L  
copolymer  
(process of controlling triboelec. charging for toner particles  
contg.)
- L62 ANSWER 6 OF 20 HCA COPYRIGHT 2003 ACS
- 136:94671 Manufacture of solid electrolytic capacitors. Akami, Kenji;  
Kudo, Yasuo; Kusayanagi, Hiroki; Matsuya, Yasue (Matsushita Electric  
Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002008946  
A2 20020111, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
2000-188927 20000623.
- AB The capacitors are manufd. by (1) chem. converting valve metals to  
form dielec. layers, (2) applying sol. elec. conducting  
polymer-dissolved solvent compns. or elec. conducting polymer fine  
particle-dispersed dispersion media compns. contg.  
**alkylnaphthalenesulfonic** acid anions on the dielec. layers,  
(3) removing the solvents or the dispersion media to form elec.  
conducting compn. layers, and (4) forming elec. conducting polymer  
layers on the conducting compn. layers. The capacitors may be  
manufd. by chem. converting valve metals with solns. contg.  
**alkylnaphthalenesulfonic** acid anions to form dielec. layers  
and forming elec. conducting polymer layers on the dielec. layers.  
The capacitors may be manufd. by chem. converting valve metals to  
form dielec. layers, forming elec. conducting polymer layers on the  
dielec. layers, and chem. converting the dielec. layers with solns.  
contg. **alkylnaphthalenesulfonic** acid anions. The  
capacitors show high capacitance, low leak current, and good  
moisture and heat resistance.
- IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer  
(manuf. of high-capacitance solid electrolytic capacitors using  
elec. conducting polymers)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S

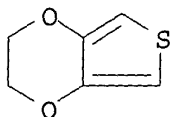


- IC ICM H01G009-028  
ICS H01G009-04; H01G009-00
- CC 76-10 (Electric Phenomena)
- ST solid electrolytic capacitor **alkylnaphthalenesulfonic acid**  
anion treatment; elec conducting polymer cathode electrolytic  
capacitor manuf
- IT 25233-30-1D, Polyaniline, **sulfonated** 25233-34-5,  
**Polythiophene** 30604-81-0, Polypyrrole  
(manuf. of high-capacitance solid electrolytic  
capacitors using elec. conducting polymers)
- IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer  
(manuf. of high-capacitance solid electrolytic capacitors using  
elec. conducting polymers)
- IT 284476-93-3  
(**oxidants**; manuf. of high-capacitance solid  
electrolytic capacitors using elec. conducting polymers)
- L62 ANSWER 7 OF 20 HCA COPYRIGHT 2003 ACS
- 135:173846 Solid electrolytic capacitors showing good adhesion of  
anodized layers to electroconductive polymer layers and their  
manufacture. Shimada, Akihiro; Naoi, Katsuhiko (Nippon Chemi-Con  
Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2001223139 A2 20010817, 5  
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-30654  
20000208.
- AB In the process, valve metals are anodized in monomer solns.  
dissolving surfactants to .gtoreq.1/2 the crit. micelle concn. to  
form anodized films and electroconductive polymer films  
simultaneously. The monomer solns. may contain electrolytes.
- IT **104-15-4**, **p-Toluenesulfonic acid**, uses  
(dopable surfactants; manuf. of solid electrolytic capacitors  
showing good adhesion of anodized layers to conductive polymer  
layers)
- RN 104-15-4 HCA
- CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



- IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene)  
(electrolyte layers; manuf. of solid electrolytic capacitors  
showing good adhesion of anodized layers to conductive polymer

layers)  
 RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S



IC ICM H01G009-04  
 ICS C25D011-06; C25D011-26; H01G009-028; H01G009-00  
 CC 76-10 (Electric Phenomena)  
 Section cross-reference(s): 38, 72  
 ST electrolytic capacitor anodized layer polypyrrole adhesion;  
 electropolymer pyrrole electrolytic capacitor tantalum anodizing;  
**dodecylbenzenesulfonate** dissolved electrolytic capacitor  
 electrochem polymer  
 IT **104-15-4**, p-Toluenesulfonic acid, uses  
 1321-69-3, Sodium **naphthalenesulfonate** 25155-30-0,  
 Sodium **dodecylbenzenesulfonate** 25638-17-9, Sodium  
**butylnaphthalenesulfonate**  
 (dopable surfactants; manuf. of solid electrolytic capacitors  
 showing good adhesion of anodized layers to conductive polymer  
 layers)  
 IT 30604-81-0P, Polypyrrole **126213-51-2P**,  
 Poly(3,4-ethylenedioxythiophene)  
 (electrolyte layers; manuf. of solid electrolytic capacitors  
 showing good adhesion of anodized layers to conductive polymer  
 layers)  
 L62 ANSWER 8 OF 20 HCA COPYRIGHT 2003 ACS  
 134:24432 Manufacture of electrically conductive polymer by  
**oxidation** polymerization in the presence of  
 fluorine-containing electrolyte. Naoi, Katsuhiko; Takeda, Masayuki;  
 Ue, Makoto (Mitsubishi Chemical Corp., Japan). Jpn. Kokai Tokkyo  
 Koho JP 2000336154 A2 20001205, 7 pp. (Japanese). CODEN: JKXXAF.  
 APPLICATION: JP 2000-53147 20000229. PRIORITY: JP 1999-77356  
 19990323.  
 AB The elec. conductive polymer is manufd. by **oxidn.** polymn.  
 of a monomer in a soln. contg. an **oxidn.** agent and  
 .gtoreq.1 fluoride selected from bis(perfluoroalkanesulfonyl)imide,  
 tris(perfluoroalkanesulfonyl)methide, and their salts. The process  
 is suitable for mass prodn. of the doped polymer for batteries,  
 elec. capacitors, etc.  
 IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene)

(manuf. of elec. conductive polymer by **oxidn.** polymn.  
in the presence of perflurroalkanesulfonyl imide or methide as  
electrolyte)

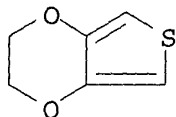
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)

CM 1

CRN 126213-50-1

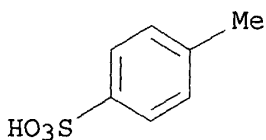
CMF C6 H6 O2 S



IT 104-15-4, p-Toluenesulfonic acid, uses  
(**oxidn.** agent; manuf. of elec. conductive polymer by  
**oxidn.** polymn. in the presence of perflurroalkanesulfonyl  
imide or methide as electrolyte)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IC ICM C08G061-12

ICS C08G073-00; C08K005-541; C08K005-56; C08L065-00; C08L079-00

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 35, 38, 52

ST elec conductive polymer soln **oxidn** polymn;  
perfluoroalkanesulfonylimide perfluoroalkanesulfonylmethide  
electrolyte dopant elec conductor

IT Capacitor electrodes

(anodes; manuf. of elec. conductive polymer by **oxidn.**  
polymn. in the presence of perflurroalkanesulfonyl imide or  
methide as electrolyte for)

IT Anodes

(capacitor; manuf. of elec. conductive polymer by **oxidn**  
. polymn. in the presence of perflurroalkanesulfonyl imide or  
methide as electrolyte for)

IT Conducting polymers

Electrolytes

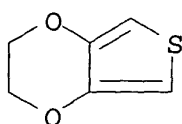
(manuf. of elec. conductive polymer by **oxidn.** polymn.  
in the presence of perflurroalkanesulfonyl imide or methide as  
electrolyte)

- IT Battery cathodes  
Secondary batteries  
(manuf. of elec. conductive polymer by **oxidn.** polymn.  
in the presence of perflurroalkanesulfonyl imide or methide as  
electrolyte for)
- IT Polymerization  
(**oxidative**; manuf. of elec. conductive polymer by  
**oxidn.** polymn. in the presence of perflurroalkanesulfonyl  
imide or methide as electrolyte)
- IT Electrolytic capacitors  
(solid; manuf. of elec. conductive polymer by **oxidn.**  
polymn. in the presence of perflurroalkanesulfonyl imide or  
methide as electrolyte for)
- IT 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide  
(dopant; manuf. of elec. conductive polymer by **oxidn.**  
polymn. in the presence of perflurroalkanesulfonyl imide or  
methide as electrolyte)
- IT 25233-30-1P, Polyaniline 30604-81-0P, Polypyrrole 84928-92-7P,  
Poly(3-methylthiophene) **126213-51-2P**, Poly(3,4-  
ethylenedioxythiophene)  
(manuf. of elec. conductive polymer by **oxidn.** polymn.  
in the presence of perflurroalkanesulfonyl imide or methide as  
electrolyte)
- IT 132404-42-3, Lithium tris(trifluoromethanesulfonyl)methide  
132843-44-8, Lithium bis(pentafluoroethanesulfonyl)imide  
(manuf. of elec. conductive polymer by **oxidn.** polymn.  
in the presence of perflurroalkanesulfonyl imide or methide as  
electrolyte)
- IT **104-15-4**, p-Toluenesulfonic acid, uses 7727-54-0  
10028-22-5, Ferric sulfate 13590-82-4, Cerium(IV) sulfate  
(**oxidn.** agent; manuf. of elec. conductive polymer by  
**oxidn.** polymn. in the presence of perflurroalkanesulfonyl  
imide or methide as electrolyte)

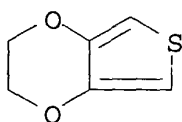
L62 ANSWER 9 OF 20 HCA COPYRIGHT 2003 ACS

- 132:341939 A method for **preparing** a conductive  
**polythiophene** layer at low temperature. Cloots, Tom;  
Loccufier, Johan; Louwet, Frank; Andriessen, Ronn (Agfa-Gevaert  
N.V., Belg.). Eur. Pat. Appl. EP 1003179 A1 20000524, 12 pp.  
DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI,  
LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN:  
EPXXDW. APPLICATION: EP 1999-203545 19991027. PRIORITY: EP  
1998-203951 19981117; EP 1998-204382 19981221.
- AB A method for producing a polymeric conductive layer on an object  
comprising the steps of : providing an aq. compn. contg. a  
polythiophene, a polyanion compd. and an aprotic compd. with a  
dielec. const. .epsilon. .gtoreq. 15, applying said compn. to said  
object forming a layer and drying said layer to form a conductive  
polymeric layer on said object, characterized in that during said  
prodn. said object and said layer are kept at a temp. <100.degree.  
and said conductive polymeric layer has a resistivity of at most 2  
k.OMEGA./square.

IT 126213-50-1, 3,4-Ethylenedioxy-thiophene  
 (in method for **prepg.** conductive **polythiophene**  
 layer at low temp.)  
 RN 126213-50-1 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene)  
 (method for **prepg.** conductive **polythiophene**  
 layer at low temp.)  
 RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
 NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S



IC ICM H01B001-12  
 ICS H05B033-28  
 CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 35, 38, 73, 74  
 IT Polyelectrolytes  
 (anionic; in method for **prepg.** conductive  
**polythiophene** layer at low temp.)  
 IT Solvents  
 (aprotic; in method for **prepg.** conductive  
**polythiophene** layer at low temp.)  
 IT Films  
 Films  
 (elec. conductive; method for **prepg.** conductive  
**polythiophene** layer at low temp.)  
 IT Phosphates, processes  
 (esters; in method for **prepg.** conductive  
**polythiophene** layer at low temp.)  
 IT Electric conductors  
 Electric conductors  
 (films; method for **prepg.** conductive  
**polythiophene** layer at low temp.)  
 IT Drying

- Glass substrates  
(in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Amides, processes  
Lactams  
Sulfones  
Sulfoxides  
(in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Conducting polymers  
(method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Electroluminescent devices  
Liquid crystal displays  
(method for **prepg.** conductive **polythiophene** layer at low temp. for)
- IT Polymerization  
(oxidative; method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Polymers, processes  
(**polythiophenes**; method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Anions  
(polyvalent; in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Polyesters, processes  
(substrate; in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT Electrodes  
(transparent; from method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT 57-13-6, Urea, processes 57-13-6D, Urea, derivs., processes  
60-51-5, Phosphamide 75-12-7, Formamide, processes 80-73-9,  
1,3-Dimethyl-2-imidazolidinone 126-33-0, Tetramethylenesulfone  
127-19-5, N,N-Dimethylacetamide 616-45-5, 2-Pyrrolidone 632-22-4  
15477-76-6, Phosphonate  
(in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT 7727-21-1 10028-22-5, Ferric sulfate 50851-57-5, Polystyrene  
**sulfonic acid 126213-50-1, 3,4-Ethylenedioxy-**  
**thiophene**  
(in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT 11114-17-3, Fluorad FC430 25249-60-9, Vinylidene chloride-methyl  
acrylate-itaconic acid copolymer 51013-18-4, Methylpyrrolidone  
(in method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT **126213-51-2P, Poly(3,4-ethylenedioxythiophene)**  
(method for **prepg.** conductive **polythiophene** layer at low temp.)
- IT 25038-59-9, Polyethyleneterephthalate, processes  
(substrate; in method for **prepg.** conductive



polythiophene layer at low temp.)

L62 ANSWER 10 OF 20 HCA COPYRIGHT 2003 ACS

132:244845 Process for improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes.

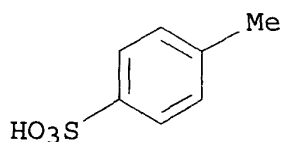
Hahn, Randolph S.; Lessner, Philip M.; Rajasekaran, Veeriya (Kemet Electronics Corporation, USA). PCT Int. Appl. WO 2000019469 A1 20000406, 23 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US22487 19990929. PRIORITY: US 1998-163318 19980930.

AB The adhesion of a conductive polymer film to an **oxidized** porous pellet anode is improved by the incorporation of a silane coupling agent in the polymer impregnating soln. The incorporation of the silane coupling agent also decreases leakage current and dissipation factor. Suitable silanes are those with the formula (R1-R3)-Si-(OR2)3. Each of R2 and R3 is a C1-6 alkyl group. R1 can be chosen from a wide variety of org. functional groups such as epoxy, glycidoxy, amino, and pyrrole. The most preferred silane is 3-glycidoxypropyltrimethoxysilane.

IT 104-15-4, uses  
(dopant; in improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes)

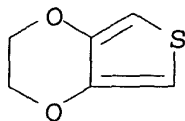
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S

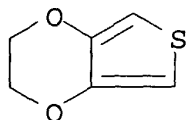


- IC ICM H01G009-042  
 CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 38  
 IT Dopants  
     **Oxidizing agents**  
     (in improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes)  
 IT 104-15-4, uses  
     (dopant; in improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes)  
 IT 25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
     (improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes)  
 IT 77214-82-5, Ferric tosylate  
     (**oxidizing agent**; in improving leakage and dissipation factor of solid electrolytic capacitors employing conductive polymer cathodes)
- L62 ANSWER 11 OF 20 HCA COPYRIGHT 2003 ACS  
 131:345376 Capacitor containing polythiophene-based electrically conductive layer and its manufacture method. Akami, Kenji; Kudo, Yasuo; Matsue, Yasue (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11312626 A2 19991109 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-118316 19980428.
- AB The capacitor is equipped with a pair of electrodes, one of which has an elec. conductive layer comprises a polythiophene deriv. doped with a benzene **sulfonate**, alkylbenzene **sulfonate**, alkyl naphthalene **sulfonate**, and/or anthraquinone **sulfonate** ion. The manuf. method involves prepg. a dielec. layer, prepg. a thiophene-based monomer, prepg. an **oxidant** soln. contg. a benzene **sulfonate**, alkylbenzene **sulfonate**, alkyl naphthalene **sulfonate**, and/or anthraquinone **sulfonate** ion, and forming the conductive layer comprising an elec. conductive polymer by chem. polymn. using the **oxidant**. The capacitor shows excellent heat and moisture resistance and prevention of current leakage.
- IT 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer  
     (manuf. of **polythiophene**-based elec. conductive polymer for capacitor)
- RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM H01G009-028

CC 76-10 (Electric Phenomena)

Section cross-reference(s): 38

ST polythiophene doped elec conductor capacitor; benzene **sulfonate** doped polythiophene capacitor conductor; alkylbenzene **sulfonate** doped elec conductive layer; naphthalene anthraquinone **sulfonate** dopant conductive polymer

IT Films

(elec. conductive; **manuf. of polythiophene**-based elec. conductive polymer for capacitor)

IT Electric conductors

(films; **manuf. of polythiophene**-based elec. conductive polymer for capacitor)

IT Capacitors

Conducting polymers

**Oxidizing agents**

(**manuf. of polythiophene**-based elec. conductive polymer for capacitor)

IT Polymerization

(**oxidative; manuf. of polythiophene**-based elec. conductive polymer for capacitor)

IT 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer

(**manuf. of polythiophene**-based elec. conductive polymer for capacitor)

IT 67320-01-8 247178-43-4, **Triisopropyl naphthalenesulfonic acid iron salt** 249299-57-8, **Anthraquinone-2-sulfonic acid iron salt** 249519-50-4, **p-Toluenesulfonic acid iron salt** 249575-39-1, **Naphthalenesulfonic acid iron salt**

(**manuf. of polythiophene**-based elec. conductive polymer for capacitor)

IT 62-23-7, p-Nitrobenzoic acid 98-95-3, Nitrobenzene, uses 99-06-9, 3-Hydroxybenzoic acid, uses 100-02-7, p-Nitrophenol, uses 108-46-3, 3-Hydroxyphenol, uses 554-84-7 619-73-8, p-Nitrobenzyl alcohol 767-00-0, p-Cyanophenol

(**manuf. of polythiophene**-based elec. conductive polymer for capacitor)

L62 ANSWER 12 OF 20 HCA COPYRIGHT 2003 ACS

131:331149 Capacitor having anthraquinone **sulfonate**-doped electrically conductive film and its manufacture method. Kudo,

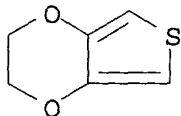
Yasuo; Akami, Kenji; Matsuka, Yasue (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11312627 A2 19991109 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-118317 19980428.

- AB The capacitor is equipped with a pair of electrodes, one of which has an elec. conductive layer comprising an anthraquinone **sulfonic** acid-doped polythiophene or its deriv. The manuf. method involves prepg. a dielec. layer, prepg. a thiophene- or its deriv.-based monomer, prepg. an **oxidant** soln. contg. an anthraquinone **sulfonic** acid, and forming the elec. conductive layer on a surface of the dielec. layer by chem. polymn. of the monomer using the **oxidant**. The capacitor shows excellent heat and moisture resistance.
- IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene)  
(formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



- IC ICM H01G009-028  
ICS H01G004-10
- CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 38
- ST elec conductive polymer anthraquinone **sulfonate** doped;  
polymn **oxidative** elec conductor film
- IT Polyimides, uses  
(dielec. films; formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT Films  
(elec. conductive; formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT Electric conductors  
(films; formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT Capacitors  
Conducting polymers  
**Oxidizing** agents  
(formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT Polymerization

- (**oxidative**; formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT 249299-57-8 249299-58-9 249299-60-3  
(dopant; formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT 7429-90-5, Aluminum, uses 7440-25-7, Tantalum, uses  
(formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT 25233-34-5P, **Polythiophene 126213-51-2P**,  
Poly(3,4-ethylenedioxythiophene)  
(**formation** of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)
- IT 62-23-7, p-Nitrobenzoic acid 98-95-3, Nitrobenzene, uses  
99-06-9, uses 100-02-7, p-Nitrophenol, uses 108-46-3,  
3-Hydroxyphenol, uses 554-84-7 619-73-8, p-Nitrobenzyl alcohol  
767-00-0, p-Cyanophenol  
(formation of anthraquinone **sulfonate**-doped elec. conductive polymer for capacitor)

L62 ANSWER 13 OF 20 HCA COPYRIGHT 2003 ACS

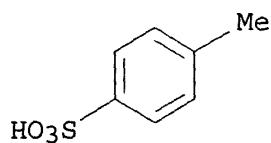
131:45545 Manufacture of conductive polymers by **oxidation** of monomers with self-regenerating **oxidant** containing iron and nitrates and capacitive elements therefor. Lessner, Philip M.; Kinard, John T.; Melody, Brian J. (Kemet Electronics Corp., USA). U.S. US 5916627 A 19990629, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-2091 19971231.

AB Conductive polymers are manufd. by **oxidative** polymg. a cyclic monomer in the presence of a self-regenerating **oxidant** system contg. a reversibly reducible metal salt and an **oxidant** to reoxidize the reduced metal ion but avoid **oxidn.** or degrdn. of the polymer. Thus, 2.25 parts 3,4-ethylenedioxythiophene was mixed with ammonium nitrate 1, ferric nitrate 0.13, and p-toluene **sulfonic** acid 1.05 parts in 50 mL isopropanol at pH 4-7, coated onto a glass slide and evapd. the solvent to give a black powder showing cond.

IT 104-15-4, uses  
(dopant; manuf. of conductive polymers by **oxidn.** of monomers with self-regenerating **oxidant** contg. iron and nitrates for capacitive elements)

RN 104-15-4 HCA

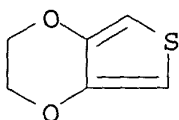
CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2P, 3,4-Ethylenedioxythiophene polymer  
(manuf. of conductive polymers by **oxidn.** of monomers with self-regenerating **oxidant** contg. iron and nitrates)

for capacitive elements)

RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S



IC ICM B05D001-36  
 ICS B05D005-12  
 NCL 427079000  
 CC 37-3 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 76  
 ST conductive polymer prepn **oxidn** capacitive element; iron  
 nitrate self regenerating **oxidant**  
 IT Capacitors  
 Conducting polymers  
 (manuf. of conductive polymers by **oxidn.** of monomers  
 with self-regenerating **oxidant** contg. iron and nitrates  
 for capacitive elements)  
 IT Polymerization  
 Polymerization catalysts  
 (**oxidative**; manuf. of conductive polymers by  
**oxidn.** of monomers with self-regenerating **oxidant**  
 contg. iron and nitrates for capacitive elements)  
 IT 104-15-4, uses  
 (dopant; manuf. of conductive polymers by **oxidn.** of  
 monomers with self-regenerating **oxidant** contg. iron and  
 nitrates for capacitive elements)  
 IT 30604-81-0P, Pyrrole polymer  
 (manuf. of conductive polymers by **oxidn.** of monomers  
 with self-regenerating **oxidant** contg. iron and nitrates  
 for capacitive elements)  
 IT 126213-51-2P, 3,4-Ethylenedioxythiophene polymer  
 (manuf. of conductive polymers by **oxidn.** of monomers  
 with self-regenerating **oxidant** contg. iron and nitrates  
 for capacitive elements)  
 IT 6484-52-2, Ammonium nitrate, uses  
 (**oxidant**; manuf. of conductive polymers by  
**oxidn.** of monomers with self-regenerating **oxidant**  
 contg. iron and nitrates for capacitive elements)  
 IT 10421-48-4, Ferric nitrate  
 (reducing agent; manuf. of conductive polymers by **oxidn**  
 . of monomers with self-regenerating **oxidant** contg.

iron and nitrates for capacitive elements)

L62 ANSWER 14 OF 20 HCA COPYRIGHT 2003 ACS

130:283144 Thermally stable electroconductive polymer compositions and their manufacture method. Kudou, Yasuo; Kojima, Toshikuni (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11080420 A2 19990326 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-239323 19970904.

AB The compns. contg. electroconductive polymers having conjugated double bonds, and anion dopants are manufd. with high efficiency by polymg. monomers in aq. media contg. transition metal salts, benzyl alc. derivs., and optionally, anionic surfactants. Thus, pyrrole was polymd. in the presence of 0.02 mol Fe<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> and 0.0075 mol p-nitrobenzyl alc. to give a polypyrrole compn. showing electrocond. 12.5 S.cntdot.cm<sup>-1</sup>.

IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer (doped; manuf. of thermally stable elec. conducting polymer compns.)

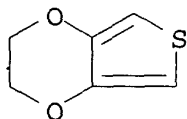
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM C08K003-10  
ICS C08F002-10; C08F004-26; H01B001-12

CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 35, 76

IT **Sulfonic** acids, uses  
**Sulfonic** acids, uses  
(**alkanesulfonic**, sodium salts, surfactant; manuf. of thermally stable elec. conducting polymer compns.)

IT Polymerization  
(**oxidative**; manuf. of thermally stable elec. conducting polymer compns.)

IT 25233-30-1P, Aniline homopolymer 25233-34-5P,  
**Polythiophene** 30604-81-0P, Polypyrrole  
**126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer  
(doped; manuf. of thermally stable elec. conducting polymer compns.)

IT 1321-69-3D, Sodium **naphthalenesulfonate**, alkyl-substituted  
4706-78-9, Potassium dodecylsulfate 25155-30-0, Sodium  
**dodecylbenzenesulfonate**

(surfactant; manuf. of thermally stable elec. conducting polymer compns.)

L62 ANSWER 15 OF 20 HCA COPYRIGHT 2003 ACS

130:231085 Manufacture of tantalum solid electrolytic capacitor with high capacitance. Akami, Kenji; Kudo, Yasuo; Matsuie, Yasue (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11074156 A2 19990316 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-232064 19970828.

AB The method involves the following steps; (1) treating an anode comprising sintered Ta valve metal powders with a phosphoric acid aq. soln. to form a dielec. oxide layer, (2) keeping the anode in air, (3) immersing the anode in a monomer soln., (4) immersing in an **oxidizing** agent soln. to form an elec. conducting polymer-contg. solid electrolyte layer, and (5) forming a cathode. In the method, the anode may be immersed in the monomer soln. at reduced pressure or heated in air instead of keeping in air. Capacitors with high capacitance and low temp. dependence of capacitance are obtained.

IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer (manuf. of tantalum solid electrolytic capacitor with high capacitance)

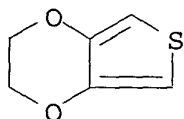
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6.H6.O2.S



IC ICM H01G009-028

ICS H01G009-035; H01G009-052

CC 76-10 (Electric Phenomena)

Section cross-reference(s): 38

ST tantalum solid electrolytic capacitor **oxidn** polymn; elec conducting polymer electrolyte manuf capacitor; pyrrole polymer manuf solid electrolytic capacitor; thiophene polymer manuf solid electrolytic capacitor

IT Polymerization (oxidative; manuf. of tantalum solid electrolytic capacitor with high capacitance)

IT Polymers, uses (polythiophenes; manuf. of tantalum solid electrolytic capacitor with high capacitance)

IT 25155-19-5D, **Naphthalenesulfonic** acid, alkyl derivs.,



sodium salt

(dopant; manuf. of tantalum solid electrolytic capacitor with high capacitance)

IT 1314-61-0P, Tantalum oxide 30604-81-0P, Polypyrrole  
**126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer  
 (manuf. of tantalum solid electrolytic capacitor with high capacitance)

IT 10028-22-5, Iron(III) sulfate  
 (**oxidizing** agent; manuf. of tantalum solid electrolytic capacitor with high capacitance)

L62 ANSWER 16 OF 20 HCA COPYRIGHT 2003 ACS

130:197299 Chemical Synthesis, Characterization, and Electrochemical Studies of Poly(3,4-ethylenedioxythiophene)/Poly(styrene-4-**sulfonate**) Composites. Lefebvre, Mark; Qi, Zhigang; Rana, Danesh; Pickup, Peter G. (Department of Chemistry, Memorial University of Newfoundland, St. John's, NF, A1B 3X7, Can.). Chemistry of Materials, 11(2), 262-268 (English) 1999. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB Poly(3,4-ethylenedioxythiophene)/poly(styrene-4-**sulfonate**) (PEDOT/PSS) composites were prep'd. from aq. and aq. acetonitrile solns. of EDOT and NaPSS by **oxidn.** using Fe(III) salts. Powders with PEDOT to PSS ratios ranging from 0.3 to 4.2 and electronic conductivities as high as 10 S cm<sup>-1</sup> were obtained in good yields. The PEDOT/PSS blends are cation exchangers and exhibit facile electrochem. in both aq. and acetonitrile media. Impedance measurements showed that 30 .mu.m thick PEDOT/PSS layers have proton conductivities as high as 0.03 S cm<sup>-1</sup>.

IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene)  
 (chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-**sulfonate**) polyanion)

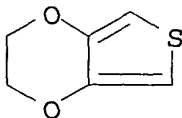
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 72

ST polythiophene **polystyrenesulfonate** composite electrochem;  
 elec cond polythiophene **polystyrenesulfonate** composite;  
 cation exchanger polythiophene **polystyrenesulfonate**

- composite
- IT Cation exchangers
- Conducting polymers
- Electric conductivity
  - (chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)
- IT Catalysts
  - (electrocatalysts, supports for; chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion for)
- IT Polymerization
  - (electrochem.; of ethylenedioxythiophene in presence of poly(styrene-4-sulfonate) and ferric salt oxidant)
- IT Cyclic voltammetry
- Electric impedance
- Polymer morphology
  - (of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)
- IT Polymers, preparation
  - (polythiophenes; chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)
- IT Ionic conductivity
  - (proton; chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)
- IT Ionomers
  - (sulfo-contg., sodium salts; chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)
- IT 28038-50-8P, Sodium poly(4-styrenesulfonate)  
126213-51-2P, Poly(3,4-ethylenedioxythiophene)
  - (chem. synthesis, characterization, and electrochem. studies of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)
- IT 7705-08-0, Ferric chloride, processes 10421-48-4, Ferric nitrate
  - (oxidant; in chem. synthesis, of poly(3,4-ethylenedioxythiophene) composites with poly(styrene-4-sulfonate) polyanion)

L62 ANSWER 17 OF 20 HCA COPYRIGHT 2003 ACS

130:74922 Manufacture of solid electrolytic capacitor using electrically conducting polymer. Kaneko, Atsuko (Nippon Chemi-Con Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10340831 A2 19981222 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-165232 19970606.

AB The capacitor is manufd. by winding an anode foil and a cathode foil via a separator, impregnating the resulting capacitor with 3,4-ethylenedioxythiophene and an oxidant dissolved in a

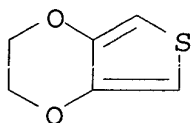
solvent, and heating for .gtoreq.2 times for polymn. The capacitor showed improved ESR characteristics and high capacitance.

IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer  
(manuf. of solid electrolytic capacitor using thiophene  
conducting polymer by **oxidn.** polymn.)  
RN 126213-51-2 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM H01G009-028  
ICS C08G061-12  
CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 35  
ST solid electrolytic capacitor **oxidn** polymn thiophene; elec  
conducting thiophene polymer solid capacitor  
IT Conducting polymers  
(manuf. of solid electrolytic capacitor using thiophene  
conducting polymer by **oxidn.** polymn.)  
IT Polymerization  
(**oxidative**; manuf. of solid electrolytic capacitor  
using thiophene conducting polymer by **oxidn.** polymn.)  
IT Polymers, uses  
(**polythiophenes**; manuf. of solid electrolytic  
capacitor using thiophene conducting polymer by **oxidn.**  
polymn.)  
IT Electrolytic capacitors  
(solid; manuf. of solid electrolytic capacitor using thiophene  
conducting polymer by **oxidn.** polymn.)  
IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer  
(manuf. of solid electrolytic capacitor using thiophene  
conducting polymer by **oxidn.** polymn.)  
IT 77214-82-5, Iron(III) p-**toluenesulfonate**  
(**oxidant**; manuf. of solid electrolytic capacitor using  
thiophene conducting polymer by **oxidn.** polymn.)  
IT 71-36-3, Butanol, uses  
(solvent; manuf. of solid electrolytic capacitor using thiophene  
conducting polymer by **oxidn.** polymn.)

L62 ANSWER 18 OF 20 HCA COPYRIGHT 2003 ACS

128:199653 Solid electrolytic capacitor containing **sulfonic**  
acid-doped conductive polymer and its manufacture. Kobayashi,

Atsushi; Fukami, Takashi; Date, Tomohide (NEC Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10032145 A2 19980203 Heisei, 10 pp.

(Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-185831 19960716.

AB The capacitor contains a polymer solid electrolyte layer doped with an org. **sulfonic** acid contg. arom. **polysulfonic** acid, OH- or CO<sub>2</sub>H-contg. org. **sulfonic** acid, alicyclic **sulfonic** acid, and **benzoquinonesulfonic** acid. The capacitor is manufd. by forming the polymer layer by chem. **oxidn.**-polymn. of a polymerizable monomer by using an **oxidizing** agent contg. a cupric compd., a Ag compd., their mixt., and a mixt. of a Fe compd. and H<sub>2</sub>O<sub>2</sub>. The manuf. method using the agent prevents byproducts from forming and gives the capacitor in a low cost. The capacitor shows improved ESR (equiv. series resistance) and current leakage at higher temp. and high reliability.

IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene) (**oxidn.**-polymn. of **sulfonic** acid-doped elec. conductive polymer in manuf. of solid electrolytic capacitor)

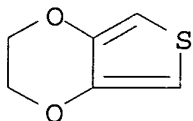
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

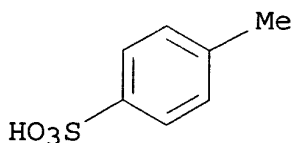
CMF C6 H6 O2 S



IT **104-15-4**, **Toluenesulfonic** acid, uses (**oxidn.**-polymn. of **sulfonic** acid-doped elec. conductive polymer in manuf. of solid electrolytic capacitor)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IC ICM H01G009-028

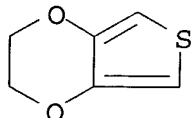
CC 76-10 (Electric Phenomena)

Section cross-reference(s): 35, 38

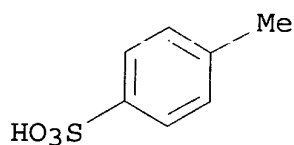
ST solid electrolytic capacitor conductive polymer electrolyte; **sulfonic** acid doped polymer electrolytic capacitor; **oxidizing** agent polymer prepn electrolytic capacitor;

- oxidn** polymn solid electrolytic capacitor
- IT **Oxidizing** agents  
(**oxidn.**-polymn. of **sulfonic** acid-doped elec.  
conductive polymer in manuf. of solid electrolytic capacitor)
- IT Electrolytic capacitors  
(solid; **oxidn.**-polymn. of **sulfonic** acid-doped  
elec. conductive polymer in manuf. of solid electrolytic  
capacitor)
- IT 97-05-2D, Sulfosalicylic acid, iron complexes 877-19-0D, iron  
complexes 3144-16-9D, **Camphorsulfonic** acid, iron  
complexes 7439-89-6D, Iron, complexes with **sulfonic**  
acids, uses 7722-84-1, Hydrogen peroxide, uses 7783-90-6, Silver  
chloride, uses 14104-77-9, Iron nitrate 30496-93-6D,  
**Benzenedisulfonic** acid, iron complexes 42884-29-7, Copper  
**dodecylbenzenesulfonate** 75562-94-6D, Sulfoisophthalic  
acid, iron complexes  
(**oxidizing** agent; **oxidn.**-polymn. of  
**sulfonic** acid-doped elec. conductive polymer in manuf. of  
solid electrolytic capacitor)
- IT 30604-81-0P, Polypyrrole **126213-51-2P**,  
Poly(3,4-ethylenedioxythiophene)  
(**oxidn.**-polymn. of **sulfonic** acid-doped elec.  
conductive polymer in manuf. of solid electrolytic capacitor)
- IT 97-05-2, Sulfosalicylic acid **104-15-4**,  
**Toluenesulfonic** acid, uses 877-19-0 1330-69-4,  
Dodecylbenzene **sulfonate** 3144-16-9,  
**Camphorsulfonic** acid 30496-93-6, Benzene  
**disulfonic** acid 75562-94-6, Sulfoisophthalic acid  
(**oxidn.**-polymn. of **sulfonic** acid-doped elec.  
conductive polymer in manuf. of solid electrolytic capacitor)
- L62 ANSWER 19 OF 20 HCA COPYRIGHT 2003 ACS
- 128:175070 Manufacture of solid electrolytic capacitor by  
**oxidative** polymerization. Suenaga, Kazuhiro (Sanyo Electric  
Co., Ltd., Japan; Saga Sanyo Industries Co., Ltd.). Jpn. Kokai  
Tokkyo Koho JP 10050558 A2 19980220 Heisei, 3 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 1996-202523 19960731.
- AB The manuf. method involves immersing a capacitor device having a  
chem.-conversion film-contg. anode material with a monomer soln.  
contg. an **oxidizing** agent to form an elec. conductive  
polymer layer as a cathode electrolyte by **oxidative**.  
polymn. The capacitor shows low equiv. series resistance and large  
capacitance.
- IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene)  
(**oxidative** polymn. of electrolyte in manuf. of solid  
electrolytic capacitor with low ESR)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)

CRN 126213-50-1  
CMF C6 H6 O2 S



IT 104-15-4, p-Toluenesulfonic acid, uses  
(oxidative polymn. of electrolyte in manuf. of solid  
electrolytic capacitor with low ESR)  
RN 104-15-4 HCA  
CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IC ICM H01G009-028  
CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 35, 38  
ST solid electrolytic capacitor polymer electrolyte; **oxidative**  
polymn cathode electrolyte electrolytic capacitor; **oxidizing**  
agent cathode electrolyte polymn capacitor  
IT Polymerization  
(oxidative; oxidative polymn. of electrolyte  
in manuf. of solid electrolytic capacitor with low ESR)  
IT Electrolytic capacitors  
(solid; oxidative polymn. of electrolyte in manuf. of  
solid electrolytic capacitor with low ESR)  
IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene)  
(oxidative polymn. of electrolyte in manuf. of solid  
electrolytic capacitor with low ESR)  
IT 104-15-4, p-Toluenesulfonic acid, uses  
(oxidative polymn. of electrolyte in manuf. of solid  
electrolytic capacitor with low ESR)

L62 ANSWER 20 OF 20 HCA COPYRIGHT 2003 ACS

128:107595 Method for preparing a conductor polymer film for producing a  
radioactive source. De, Sanoit, Jacques; Geffroy, Bernard; Rosilio,  
Charles; Rosilio, Charles (Commissariat a l'Energie Atomique, Fr.).  
Fr. Demande FR 2748596 A1 19971114, 24 pp. (French). CODEN:  
FRXXBL. APPLICATION: FR 1996-5900 19960513.

AB The title method comprises formation a conductor polymer film in  
presence of a monomer, an **oxidizing** agent, and a dopant  
ion in contact with a membrane support. The deposited film is  
mounted on a radioactive source support and radioactive material is  
deposited on the film for producing a source. Thus, a film was

prepd. from a soln. contg. 1 mL of 3,4-ethylenedioxythiophene (monomer), 4 mL of PVC (membrane support) dissolved in THF at 50 g/L, 1 g of ferric tosylate (**oxidizing** agent and dopant ion), and 10 mL of THF (solvent).

IT 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer  
(method for prepg. a conductor polymer film for producing a radioactive source)

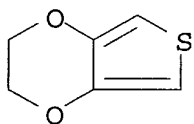
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM G21G004-06

ICS C08J005-18; H01B001-12; H01B005-14

ICI C08L065-00

CC 71-6 (Nuclear Technology)

Section cross-reference(s): 37

IT 77214-82-5, Ferric tosylate  
(dopant and **oxidizing** agent; method for prepg. a conductor polymer film for producing a radioactive source)

IT 25233-34-5P, **Polythiophene** 30604-81-0P 98837-51-5P, Poly(3-butylthiophene) 104934-53-4P, Poly(3-dodecylthiophene) 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer  
(method for **prepg.** a conductor polymer film for producing a radioactive source)

IT 92538-40-4, Ferric dodecyl benzene **sulfonate**  
(**oxidizing** agent; method for prepg. a conductor polymer film for producing a radioactive source)

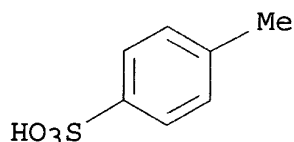
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L63 ANSWER 1 OF 14 HCA COPYRIGHT 2003 ACS

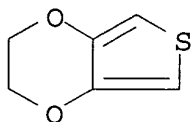
138:15218 Application of poly(3,4-ethylenedioxythiophene) to counter electrode in dye-sensitized solar cells. Saito, Yasuteru; Kitamura, Takayuki; Wada, Yuji; Yanagida, Shozo (Material and Life Science, Graduate School of Engineering, Osaka University, Osaka, 565-0871, Japan). Chemistry Letters (10), 1060-1061 (English) 2002. CODEN: CMLTAG. ISSN: 0366-7022. Publisher: Chemical Society of Japan.

AB Dye-sensitized solar cells fabricated using chem. polymd. poly(3,4-ethylenedioxythiophene) on a conductive glass as a counter electrode showed comparable conversion efficiency with a cell using

platinum sputtered counter electrode.  
 IT 104-15-4, p-Toluenesulfonic acid, uses  
 (poly(3,4-ethylenedioxythiophene) doped with; use of chem.  
 polymd. doped poly(3,4-ethylenedioxythiophene) on conductive  
 glass as counter electrode in dye-sensitized solar cells)  
 RN 104-15-4 HCA  
 CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
 (use of chem. polymd. poly(3,4-ethylenedioxythiophene) on  
 conductive glass as counter electrode in dye-sensitized solar  
 cells)  
 RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
 NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S

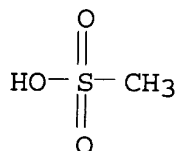


CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 104-15-4, p-Toluenesulfonic acid, uses  
 28210-41-5, Poly(4-styrenesulfonic acid)  
 (poly(3,4-ethylenedioxythiophene) doped with; use of chem.  
 polymd. doped poly(3,4-ethylenedioxythiophene) on conductive  
 glass as counter electrode in dye-sensitized solar cells)  
 IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
 (use of chem. polymd. poly(3,4-ethylenedioxythiophene) on  
 conductive glass as counter electrode in dye-sensitized solar  
 cells)  
 L63 ANSWER 2 OF 14 HCA COPYRIGHT 2003 ACS  
 137:390369 Procedure for the direct electrolytic metallization of  
 electrically nonconducting substrate surfaces. Czeczka, Regina;  
 Stamp, Lutz (Atotech Deutschland GmbH, Germany). Ger. DE 10124631  
 C1 20021121, 18 pp. (German). CODEN: GWXXAW. APPLICATION: DE  
 2001-10124631 20010518.  
 AB The invention describes an acidic aq. soln. or an acid microemulsion

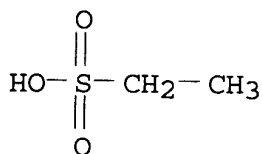


on aq. basis, contg. a thiophene compd. and an alkanesulfonic acid, selected from the group, comprising methanesulfonic acid, ethanesulfonic acid and ethanedisulfonic acid used for electrodeposition. Also a procedure for the direct electrolytic metalization of elec. nonconductive substrate surfaces, on which Mn dioxide layer on the elec. nonconductive substrate surfaces was formed is described. The surface treatment before metalization is described.

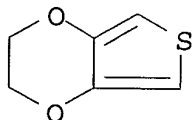
- IT 75-75-2, Methanesulfonic acid 594-45-6,  
Ethanesulfonic acid 126213-50-1, 3,4-  
Ethylenedioxythiophene  
(procedure for direct electrolytic metalization of elec.  
nonconducting substrate surfaces involving deposition or  
treatment in soln. contg.)
- RN 75-75-2 HCA
- CN Methanesulfonic acid (8CI, 9CI) (CA INDEX NAME)



- RN 594-45-6 HCA
- CN Ethanesulfonic acid (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- RN 126213-50-1 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



- IC ICM C25D005-54
- CC 72-8 (Electrochemistry)
- Section cross-reference(s): 76
- IT 75-21-8D, Ethylene oxide, compd. based on 75-75-2,  
Methanesulfonic acid 110-02-1D, Thiophene, compds.  
594-45-6, Ethanesulfonic acid 1310-73-2, Sodium hydroxide,  
uses 7664-38-2D, Phosphoric acid, alkali metal compds.  
7664-93-9, Sulfuric acid, uses 7722-84-1, Hydrogen peroxide, uses  
10043-35-3, Boric acid, uses 10101-50-5, Sodium permanganate

15702-33-7, Sodium manganate  $\text{Na}_2\text{MnO}_4$  50851-57-5,  
 Polystyrenesulfonic acid 50853-52-6, Ethanedisulfonic acid  
 99734-09-5 126213-50-1, 3,4-Ethylenedioxythiophene  
 475625-68-4, Securiganth C 475625-69-5, Compact CP 475626-25-6,  
 Cupracid BL-CT

(procedure for direct electrolytic metalization of elec.  
 nonconducting substrate surfaces involving deposition or  
 treatment in soln. contg.)

L63 ANSWER 3 OF 14 HCA COPYRIGHT 2003 ACS

137:179047 Sensor for analysis of mixtures by global selectivity and its  
 use in sensor system. Venancio, Everaldo Carlos; Martin Neto,  
 Ladislau; Riul, Antonio Junior; Fonseca, Fernando Josepetti;  
 Capparelli Mattoso, Luiz Henrique; Mello, Sarita Vera; Taylor, David  
 Martin (Empresa Brasileira de Pesquisa Agropecuaria-EMBRAPA,  
 Brazil). PCT Int. Appl. WO 2002066970 A1 20020829, 52 pp.  
 DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
 BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,  
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
 OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI,  
 FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG,  
 TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-BR28 20020221.  
 PRIORITY: BR 2001-3502 20010221; BR 2002-409 20020130.

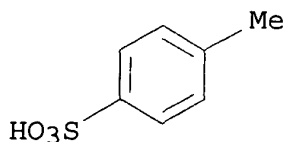
AB The object of the present invention is to provide a means of  
 detection and evaluation of mixts., based on the concept of global  
 selectivity, with enhanced sensitivity and selectivity. A 1st  
 embodiment refers to a sensor for the anal. of mixts. by global  
 selectivity comprising at least two sensor units consisting of: (a)  
 interdigitated electrodes or microelectrodes sheathed with at least  
 one monolayer of an ultra-fine film of a membrane forming material  
 possessing physicochem. affinity for the substances peculiar to the  
 mixt. to be analyzed selected from the group consisting of  
 complexing polymer conductors, complexing substances and  
 combinations thereof and, optionally, (b) nonsheathed interdigitated  
 electrodes or microelectrodes. Another embodiment concerns a  
 sensory system comprising: (1) at least two sensor units generating  
 elec. signals, consisting of: (a) interdigitated electrodes or  
 microelectrodes sheathed with at least one monolayer of an  
 ultra-fine film of a membrane forming material possessing  
 physicochem. affinity for the substances peculiar to the mixt. to be  
 analyzed selected from the group consisting of complexing polymer  
 conductors, complexing substances and combinations thereof and,  
 optionally, (b) nonsheathed interdigitated electrodes or  
 microelectrodes; (2) means for receiving elec. signals, obtained by  
 measurement of alternate current, emitted by the sensor units in  
 contact with the material to be analyzed and (3) means of processing  
 the measurements for anal. of the response patterns of an array  
 formed by the different sensor units. The sensor may be employed,  
 amongst other uses, in the anal. of taste and for monitoring the

quality of products intended for consumption, esp. beverages and foods in liq. form, and in the evaluation and detection of humic substances and other contaminants (org. or inorg.) in water from natural sources (rivers, lakes, ponds, etc.) with the purpose of monitoring the quality of the water and environmental conservation.

IT **104-15-4, Toluenesulfonic acid, uses**  
(sensor for anal. of mixts. by global selectivity and use in sensor system)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT **126213-51-2**  
(sensor for anal. of mixts. by global selectivity and use in sensor system)

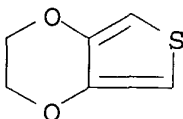
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM G01N027-416

CC 79-2 (Inorganic Analytical Chemistry)

Section cross-reference(s): 17, 61

IT 57-11-4, Stearic acid, uses **104-15-4, Toluenesulfonic acid, uses** 124-07-2, Caprylic acid, uses 142-62-1, Caproic acid, uses 3144-16-9, **Camphorsulfonic acid** 7439-89-6D, Iron, complexes 8062-15-5D, **Lignosulfonic acid, sulfonated, uses**

(sensor for anal. of mixts. by global selectivity and use in sensor system)

IT 7429-90-5, Aluminum, uses 7440-06-4, Platinum, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 25067-58-7, Polyacetylene 25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole 91201-85-3 122165-90-6, Poly(o-ethoxyaniline) **126213-51-2**

(sensor for anal. of mixts. by global selectivity and use in

sensor system)

L63 ANSWER 4 OF 14 HCA COPYRIGHT 2003 ACS

137:63577 Protonation and Subsequent Intramolecular Hydrogen Bonding as a Method to Control Chain Structure and Tune Luminescence in Heteroatomic Conjugated Polymers. Monkman, Andrew P.; Plsson, Lars-Olof; Higgins, Roger W. T.; Wang, Changsheng; Bryce, Martin R.; Batsanov, Andrei S.; Howard, Judith A. K. (Department of Physics and the Department of Chemistry, University of Durham, Durham, DH1 3LE, UK). Journal of the American Chemical Society, 124(21), 6049-6055 (English) 2002. CODEN: JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.

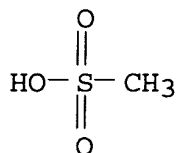
AB The effects were studied, of protonation on the structural and spectroscopic properties of 1,4-dimethoxy-2,5-bis(2-pyridyl)benzene (1) and the prepd. related AB copolymer poly{2,5-pyridylene-co-1,4-[2,5-bis(2-ethylhexyloxy)]phenylene} (2). The x-ray crystallog. data of 9, 1,4-dimethoxy-2,5-bis(2-pyridyl)benzene bis(formic acid) complex (3), and 1,4-dimethoxy-2,5-bis(2-pyridinium)benzene bis(tetrafluoroborate salt) (4) indicate that reaction of formic acid with 1 does not form an ionic pyridinium salt in the solid state, rather, the product 3 is a mol. complex with strong hydrogen bonds between each nitrogen atom and the hydroxyl hydrogen in formic acid. In contrast, reaction of 1 with tetrafluoroboric acid leads to the dication salt 4 with significant intramol. hydrogen bonding (N-H.cntdot..cntdot..cntdot.O-Me) causing planarization of the mol. The pyridinium and benzene rings in 4 form a dihedral angle of only 3.9 degrees (cf. pyridine-benzene dihedral angles of 35.4 and 31.4 degrees in 1, and 43.8 degrees in 3). Accordingly, there are large red shifts in the optical absorption and emission spectra of 4, compared to 1 and 3. Polymer 2 displays a similar red shift in its absorption and photoluminescence spectra upon treatment with strong acids in neutral soln. (e.g. **methanesulfonic** acid, **camphorsulfonic** acid, and hydrochloric acid). The effect is also obsd. in films of polymer 2 doped with strong acids. Excitation profiles show that emission arises from both protonated and nonprotonated sites in the polymer backbone. The protonation of the pyridine rings in polymer 2, accompanied by intramol. hydrogen bonding to the oxygen of the adjacent solubilizing alkoxy substituent, provides a novel mechanism for driving the polymer into a near-planar conformation, thereby extending the .pi.-conjugation, and tuning the absorption and emission profiles. The electroluminescence of a test device of configuration ITO/PEDOT/polymer 2/Ca/Al is similarly red-shifted by protonation of the polymer.

IT 75-75-2, **Methanesulfonic** acid

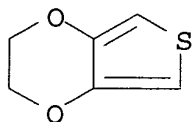
(protonation reagent; prepn. and structure of monomer and of poly(pyridylene-ethylhexyloxyphenylene) and protonation and H bonding as means for tuning luminescence)

RN 75-75-2 HCA

CN Methanesulfonic acid (8CI, 9CI) (CA INDEX NAME)

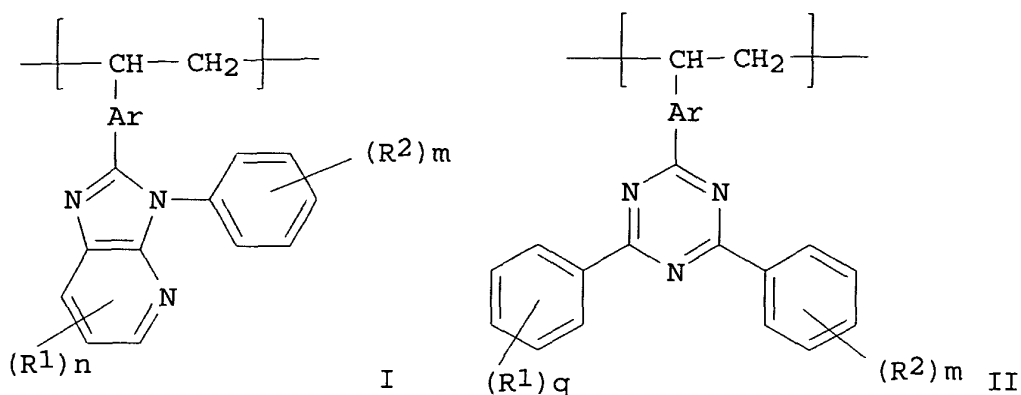


IT 126213-51-2, PEDOT  
 (test device; prepn. and structure of monomer and of  
 poly(pyridylene-ethylhexyloxyphenylene) and protonation and H  
 bonding as means for tuning luminescence)  
 RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
 NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S



CC 35-7 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 36, 73  
 IT 75-75-2, Methanesulfonic acid 3144-16-9,  
 Camphorsulfonic acid 7647-01-0, Hydrochloric acid,  
 reactions  
 (protonation reagent; prepn. and structure of monomer and of  
 poly(pyridylene-ethylhexyloxyphenylene) and protonation and H  
 bonding as means for tuning luminescence)  
 IT 7429-90-5, Aluminum, uses 7440-70-2, Calcium, uses 50926-11-9,  
 Indium tin oxide 126213-51-2, PEDOT  
 (test device; prepn. and structure of monomer and of  
 poly(pyridylene-ethylhexyloxyphenylene) and protonation and H  
 bonding as means for tuning luminescence)  
 L63 ANSWER 5 OF 14 HCA COPYRIGHT 2003 ACS  
 136:377202 Light-emitting device and material therefor. Okada, Hisashi;  
 Ise, Toshihiro; Mishima, Masayuki; Taguchi, Toshiki (Fuji Photo Film  
 Co., Ltd., Japan). U.S. Pat. Appl. Publ. US 20020055014 A1  
 20020509, 91 pp. (English). CODEN: USXXCO. APPLICATION: US  
 2001-935711 20010824. PRIORITY: JP 2000-254171 20000824; JP  
 2001-38718 20010215; JP 2001-236419 20010803.

GI

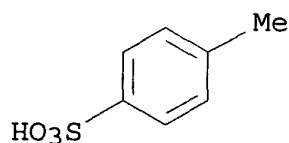


AB Light-emitting devices comprising a pair of electrodes formed on a substrate and org. compd. layers comprising a light-emitting layer provided in between the electrodes are described in which .gtoreq.1 of the org. compd. layers comprises a heterocyclic compd. having .gtoreq.2 atoms and a phosphorescent compd.; polymers with repeating units described by the general formulas I and II (Ar = arylene or divalent heterocyclic group; R1 and R2 = independently selected H or substituent; n = 0-3; q = 0-5; and m = 0-5), which may be employed as the heterocyclic compds. in the devices, are also described. The devices may also employ polymers of heterocyclic compds. from which AR is absent. The phosphorescent compd. may be an org. metal complex.

IT 104-15-4, p-Toluenesulfonic acid, reactions  
(light-emitting devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(polystyrene **sulfonate**-doped; light-emitting devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)

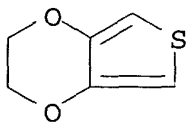
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

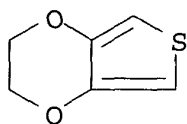
CM 1

CRN 126213-50-1

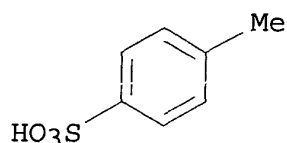
CMF C6 H6 O2 S



- IC ICM H05B033-14  
ICS C08F026-06  
NCL 428690000  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 27, 28, **38**, 76  
IT 62-53-3, Aniline, reactions 95-53-4, o-Toluidine, reactions **104-15-4**, p-Toluenesulfonic acid, reactions 108-44-1, m-Toluidine, reactions 578-66-5, 8-Aminoquinoline 586-75-4, 4-Bromobenzoyl chloride 603-35-0, Triphenylphosphine, reactions 769-92-6 876-08-4, 4-Chloromethylbenzoyl chloride 2039-82-9, 4-Bromostyrene 2156-04-9, 4-Vinylphenylboronic acid 2351-37-3, 4,4'-Biphenyldicarbonyl chloride 3842-55-5, 2-Chloro-4,6-diphenyl-1,3,5-triazine 4422-95-1, 1,3,5-Benzenetricarbonyl trichloride 5470-18-8, 2-Chloro-3-nitropyridine  
(light-emitting devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)  
IT **126213-51-2**, Poly(3,4-ethylenedioxythiophene)  
(polystyrene **sulfonate**-doped; light-emitting devices with emitting layers including heterocyclic compds. and phosphorescent materials and heterocycle deriv. polymers for them)  
L63 ANSWER 6 OF 14 HCA COPYRIGHT 2003 ACS  
133:290011 Capacitor with conductive polymer. Wheeler, David Alexander; Lessner, Philip Michael (Kemet Electronics Corporation, USA). U.S. US 6136176 A 20001024, 5 pp. (English). CODEN: USXXAM.  
APPLICATION: US 1999-315960 19990521.  
AB Capacitor elements made with a solid polymeric electrolyte show reduced leakage current when reformed at about 60-85% of formation voltage during the impregnation phase between successive layers of polymeric electrolyte.  
IT **126213-50-1**, 3,4-Ethylenedioxythiophene  
(impregnation of Ta anode in butanol or isopropanol soln. contg.)  
RN 126213-50-1 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



IT 104-15-4, Toluenesulfonic acid, processes  
 (manuf. capacitor with conductive polymer with reduced leakage  
 current by subjecting anode to formation current at electrolyte  
 soln. contg.)  
 RN 104-15-4 HCA  
 CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IC ICM C25D011-08.  
 NCL 205328000  
 CC 76-10 (Electric Phenomena)  
 Section cross-reference(s): 36, 48, 56  
 IT 35296-72-1, Butanol 126213-50-1, 3,4-  
 Ethylenedioxythiophene 249519-50-4  
 (impregnation of Ta anode in butanol or isopropanol soln. contg.)  
 IT 104-15-4, Toluenesulfonic acid, processes 6484-52-2,  
 Ammonium nitrate, processes 7664-38-2, Phosphoric acid, processes  
 (manuf. capacitor with conductive polymer with reduced leakage  
 current by subjecting anode to formation current at electrolyte  
 soln. contg.)

L63 ANSWER 7 OF 14 HCA COPYRIGHT 2003 ACS

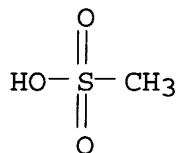
133:44984 Polymer composition for coatings with high refractivity  
 conductivity and transparency. Kim, Hyun Don; Chung, Hae Ryong;  
 Cheong, Min Kyo; Chang, Tu Won (Samsung General Chemicals Co., Ltd.,  
 S. Korea). Eur. Pat. Appl. EP 1010733 A2 20000621, 9 pp.  
 DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI,  
 LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN:  
 EPXXDW. APPLICATION: EP 1999-123741 19991130. PRIORITY: KR  
 1998-55759 19981217.

AB Disclosed is a polymer compn. for coatings with high refractivity,  
 cond. and transparency. The compn. comprises 2-20% of an aq.  
 polythiophene-based conductive polymer soln. having a solid content  
 of 1.2-1.5%; 0.5-20% of a highly refractive, inorg. sol soln. having  
 a solid content of 14-16%; 50-97.4% of an alc. contg. 1-3 carbon  
 atoms; 0.1-10% of an amide solvent; 0.005-0.1% of a water- or an  
 alc.-sol. resin binder; and 0.005-0.05% of a **sulfonic** acid  
 group-contg. monomer dopant. The compn. can be applied to CRT  
 external glass and other transparent substrates to allow thin films

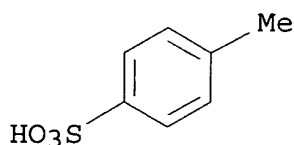


which have a refractive index of 1.6-2.0, a transmittance of 90-98 % and a surface resistance of  $1 \times 10^3$ - $1 \times 10^8$  .OMEGA./ .box..

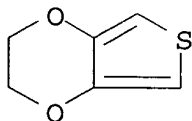
IT 75-75-2, **Methanesulfonic acid 104-15-4**,  
p-Toluene **sulfonic acid**, uses  
(dopant; polymer compn. for coatings with high refractivity cond.  
and transparency)  
RN 75-75-2 HCA  
CN Methanesulfonic acid (8CI, 9CI) (CA INDEX NAME)



RN 104-15-4 HCA  
CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2, Baytron P  
(polymer compn. for coatings with high refractivity cond. and  
transparency)  
RN 126213-51-2 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)  
CM 1  
CRN 126213-50-1  
CMF C6 H6 O2 S



IC ICM C09D005-24  
ICS H01B001-12  
CC 42-10 (Coatings, Inks, and Related Products)  
ST thiophene polymer conductive transparent refractive coating; inorg  
sol thiophene polymer coating; **sulfonic acid dopant**  
thiophene polymer coating  
IT 75-75-2, **Methanesulfonic acid** 84-50-4, 2,6-  
**Anthraquinonedisulfonic acid** 98-67-9, 4-Hydroxybenzene

**sulfonic acid 104-15-4, p-Toluene sulfonic acid, uses 117-14-6, 1,5-Anthraquinonedisulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid 30637-95-7, Anthraquinonesulfonic acid 31212-28-9, Nitrobenzene sulfonic acid**

(dopant; polymer compn. for coatings with high refractivity cond. and transparency)

IT 25233-34-5, Polythiophene **126213-51-2**, Baytron P  
(polymer compn. for coatings with high refractivity cond. and transparency)

L63 ANSWER 8 OF 14 HCA COPYRIGHT 2003 ACS

132:341662 Polymeric electrodes. Appel, G.; Mikalo, R.; Henkel, K.; Oprea, A.; Yfantis, A.; Paloumpa, I.; Schmeisser, D. (Technische Universität Cottbus, Angewandte Physik-Sensorik, Cottbus, 03013, Germany). Solid-State Electronics, 44(5), 855-861 (English) 2000. CODEN: SSELA5. ISSN: 0038-1101. Publisher: Elsevier Science Ltd..

AB The authors report expts. on conducting polymer polypyrrole leading to sensor applications. The resonance frequency, stability and sensitivity of AT-cut quartz crystals, electrochem. covered with polypyrrole tosylate, were tested under various operating conditions. The interaction of this org. semiconductor with thin metallic films was analyzed by photoelectron studies. Shifts of the valence band spectra during Ag deposition are explained by the neutralization of pos. charged surface defects. Thus the existence of a space charge region in polypyrrole is demonstrated spectroscopically.

IT **126213-51-2**, Poly(3,4-ethylenedioxythiophene)  
(PEDOT; properties of polypyrrole electrodes for sensor applications)

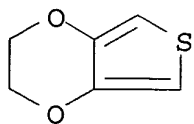
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

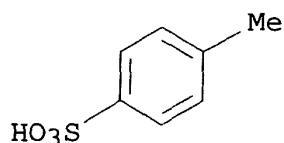
CMF C6 H6 O2 S



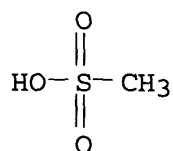
IT **104-15-4, Toluenesulfonic acid, uses**  
(properties of polypyrrole electrodes for sensor applications)

RN 104-15-4 HCA

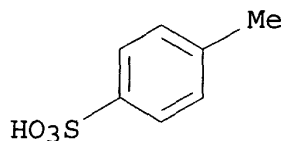
CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



- CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 38
- IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(PEDOT; properties of polypyrrole electrodes for sensor applications)
- IT 104-15-4, **Toluenesulfonic acid**, uses  
(properties of polypyrrole electrodes for sensor applications)
- L63 ANSWER 9 OF 14 HCA COPYRIGHT 2003 ACS
- 132:309814 Polythiophene-based conductive polymer liquid composition of high conductivity and transparency. Kim, Hyun Don; Chung, Hae Ryong; Cheong, Min Kyo; Chang, Tu Won (Samsung General Chemicals Co., Ltd., S. Korea). Eur. Pat. Appl. EP 999242 A1 20000510, 14 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-121646 19991101. PRIORITY: KR 1998-47281 19981105.
- AB Disclosed are polythiophene-based conductive polymer liq. compns. of high cond. and transparency. The compns. comprise 16-32% of an aq. polythiophene-based conductive polymer soln., 56-82% of an alc. solvent, 1-12% of an amide solvent, 0.01-0.2% of a **sulfonic acid** group-contg. monomer dopant, and optionally 2-8% of an alkoxy silane. The compns. can be applied to transparent substrates to form coatings which have a surface resistance of 1 k.OMEGA./box. or less and a transmittance of 92% or higher. With the excellent cond. and transparency, the compns. are useful as electromagnetic wave-shielding materials, finding numerous applications in cathode ray tube screens (TV sets and computer monitors) as well as CPP films, polyethyleneterephthalate films, polycarbonate panels, and acrylic panels.
- IT 75-75-2, **Methylsulfonic acid** 104-15-4, p-Toluene **sulfonic acid**, uses  
(dopant; polythiophene-based conductive polymer liq. compn. of high cond. and transparency)
- RN 75-75-2 HCA
- CN Methanesulfonic acid (8CI, 9CI) (CA INDEX NAME)



RN 104-15-4 HCA  
 CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)

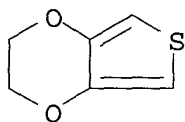


IT 126213-51-2  
 (polythiophene-based conductive polymer liq. compn. of high cond. and transparency)

RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1  
 CMF C6 H6 O2 S



IC ICM C09D005-24  
 ICS C08G061-12  
 CC 42-10 (Coatings, Inks, and Related Products)  
 ST polythiophene soln alc amide solvent; **sulfonic** acid dopant  
 polythiophene soln; elec conductive coating polythiophene  
 IT **Sulfonic** acids, uses  
 (dopant; polythiophene-based conductive polymer liq. compn. of high cond. and transparency)  
 IT 75-75-2, **Methylsulfonic** acid 98-67-9,  
 4-Hydroxybenzene **sulfonic** acid 104-15-4,  
 p-Toluene **sulfonic** acid, uses 117-14-6, 1,5-  
**Anthraquinonedisulfonic** acid 27176-87-0,  
**Dodecylbenzenesulfonic** acid 30637-95-7,  
**Anthraquinonesulfonic** acid 31212-28-9, Nitrobenzene  
**sulfonic** acid  
 (dopant; polythiophene-based conductive polymer liq. compn. of high cond. and transparency)  
 IT 25233-34-5, Polythiophene 126213-51-2  
 (polythiophene-based conductive polymer liq. compn. of high cond. and transparency)

L63 ANSWER 10 OF 14 HCA COPYRIGHT 2003 ACS  
 130:275115 Electronically-conductive polymers with good processability and high conductivity. Babinec, Susan J.; Drumright, Ray E.; Sen,

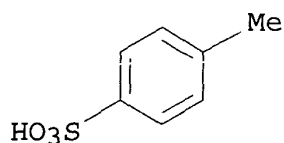
Ashish (The Dow Chemical Company, USA). PCT Int. Appl. WO 9919883 A1 19990422, 34 pp. DESIGNATED STATES: W: BR, CN, JP, KR; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1998-US21661 19981014. PRIORITY: US 1997-62047 19971015.

AB A doped intrinsically-conductive polymer having a cond. of at least .apprx.10-12 Siemens/cm (S/cm); which is doped with at least two different dopants, including a short-chain dopant having a mol. wt. of <1,000 and a long-chain dopant which is polymeric and has a wt. av. mol. wt. of >2,000.

IT 104-15-4, p-Toluenesulfonic acid, uses  
(dopant; in prepn. of doped polyaniline)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2

(electronically-conductive polymers with good processability and high cond. in matrix of)

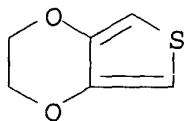
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM H01B001-12

ICS C08G073-02

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 38

IT Polycarbonates, uses

(sulfonated; electronically-conductive polymers with good processability and high cond.)

IT 104-15-4, p-Toluenesulfonic acid, uses

1333-39-7, Hydroxybenzenesulfonic acid 9010-77-9,

Ethylene-acrylic acid copolymer 25068-12-6D, Ethylene-styrene copolymer, sulfonated 26101-52-0,

Polyvinylsulfonic acid 27176-87-0,

**Dodecylbenzenesulfonic acid**

(dopant; in prepn. of doped polyaniline)

IT 9002-86-2; Polyvinyl chloride 9003-53-6, Polystyrene 9011-14-7, PMMA 126213-51-2

(electronically-conductive polymers with good processability and high cond. in matrix of)

IT 62-53-3, Aniline, reactions 75-44-5, Phosgene 80-05-7, Bisphenol A, reactions 10130-89-9, 4-Chlorosulfonylbenzoic acid 50851-57-5, Polystyrene **sulfonic acid** (in prepn. of doped polyaniline)

L63 ANSWER 11 OF 14 HCA COPYRIGHT 2003 ACS

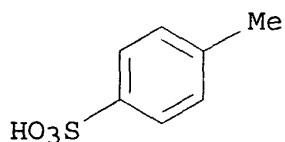
130:146772 Investigation of electroconductive polymers for solid electrolytic capacitors. Otani, Sumito (Tech. Dev. Div., Toyama Pure Chem. Ind., Ltd., Tokyo, 103, Japan). Denka Chikudenki Hyoron, 49(2), 107-118 (Japanese) 1998. CODEN: DCHYAK. ISSN: 0286-5629. Publisher: Denka Chikudenki Kenkyukai.

AB In the course of improvement in electroconductive polymers, elec. cond. of conductive polymers was examd. in air and N at 85-105.degree. for various durations up to 250 h. The suitable dopants for obtaining stable polypyrrole were arom. **sulfonic acids**, esp. those contg. a naphthalene ring. The cond. of polypyrrole decreased apparently with O and moisture. The polyethylene dioxythiophene by using p-toluene **sulfonic acid** dopant was stable at 85-105.degree. and 90% RH for <250 h in air and N.

IT 104-15-4, p-Toluene **sulfonic acid**, uses (dopant; electroconductive polymers for solid electrolytic capacitors)

RN 104-15-4 HCA

CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)



IT 126213-51-2 (elec. conductor; electroconductive polymers for solid electrolytic capacitors)

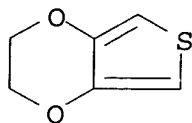
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

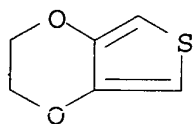
CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



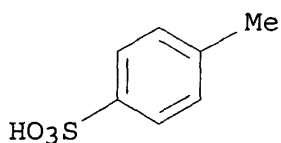
IT 126213-50-1, 3,4-Ethylenedioxythiophene  
 (material for elec. capacitors; electroconductive polymers for  
 solid electrolytic capacitors)  
 RN 126213-50-1 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



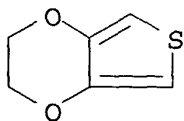
CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 38  
 ST polypyrrole cond electroconductor solid electrolytic capacitor; arom  
**sulfonic** acid dopant polypyrrole conductor; polyethylene  
 dioxythiophene toluene **sulfonic** acid dopant  
 IT **Sulfonic** acids, uses  
 (arenesulfonic, dopant for elec. conductive polymer;  
 electroconductive polymers for solid electrolytic capacitors)  
 IT 104-15-4, p-Toluene **sulfonic** acid, uses  
 (dopant; electroconductive polymers for solid electrolytic  
 capacitors)  
 IT 97-05-2, Sulfosalicylic acid 120-18-3, 2-  
**Naphthalenesulfonic** acid 26761-78-4,  
**Butylnaphthalenesulfonic** acid 27176-87-0,  
**Dodecylbenzenesulfonic** acid 28802-83-7,  
**Naphthalenetrisulfonic** acid 30496-93-6,  
**Benzenedisulfonic** acid 30553-06-1, Sulfobenzoic acid  
 57352-34-8, **Ethylbenzenesulfonic** acid  
 (elec. conductive dopant for polypyrrole; electroconductive  
 polymers for solid electrolytic capacitors)  
 IT 30604-81-0, Polypyrrole 126213-51-2  
 (elec. conductor; electroconductive polymers for solid  
 electrolytic capacitors)  
 IT 92-41-1, 2,7-Naphthalenedisulfonic acid 1333-39-7,  
**Phenolsulfonic** acid  
 (electroconductive polymers for solid electrolytic capacitors)  
 IT 109-97-7, Pyrrole 126213-50-1, 3,4-Ethylenedioxythiophene  
 (material for elec. capacitors; electroconductive polymers for  
 solid electrolytic capacitors)  
 L63 ANSWER 12 OF 14 HCA COPYRIGHT 2003 ACS  
 127:293889 The electronic structure of poly(3,4-ethylene-  
 dioxythiophene): studied by XPS and UPS. Xing, K. Z.; Fahlman, M.;

Chen, X. W.; Inganaes, O.; Salaneck, W. R. (Department of Physics (IFM), University of Linköping, S-581 83, Linköping, Swed.). *Synthetic Metals*, 89(3), 161-165 (English) 1997. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

- AB The electronic structure of poly(3,4-ethylene-dioxythiophene) (PEDOT) was investigated by x-ray and UV photoelectron spectroscopies as well as quantum chem. calcns. Significant differences have been obsd. in the photoelectron spectra between as-prepd. chem. neutralized and anion-doped PEDOT thin films. The electronic structures of as-prepd. neutral and doped PEDOT obtained from the photoelectron spectra are in good agreement with the results of new quantum chem. electronic structure calcns. No significant thermal-induced effects were detected for either as-prepd. neutral or doped PEDOT films. The concn. of anions on the polymer surface depends upon the size of the anion, with large anions, like polystyrene **sulfonate** (PSS-) base, being much more likely to cover the surface of a PEDOT film than small anion, such as tosylate(p-**methylbenzenesulfonate**). This surface concn. effect probably makes the large-anion-doped polymer a more suitable candidate as an electrode in polymer light-emitting diodes (LEDs) than the small-anion-doped polymer.
- IT **104-15-4**, p-**Toluenesulfonic** acid, uses  
(dopant; electronic structure of poly(3,4-ethylenedioxythiophene) detn. by XPS, UPS and quantum chem. calcns.)
- RN 104-15-4 HCA
- CN Benzenesulfonic acid, 4-methyl- (9CI) (CA INDEX NAME)

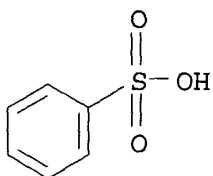


- IT **126213-51-2**,  
(electronic structure of poly(3,4-ethylenedioxythiophene) detn. by XPS, UPS and quantum chem. calcns.)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S

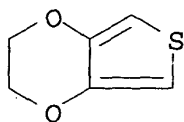




- CC 36-5 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 73, 76
- IT 104-15-4, p-Toluenesulfonic acid, uses  
50851-57-5, Polystyrenesulfonic acid  
(dopant; electronic structure of poly(3,4-ethylenedioxythiophene)  
detn. by XPS, UPS and quantum chem. calcns.)
- IT 126213-51-2  
(electronic structure of poly(3,4-ethylenedioxythiophene) detn.  
by XPS, UPS and quantum chem. calcns.)
- L63 ANSWER 13 OF 14 HCA COPYRIGHT 2003 ACS  
126:144657 Thermal behavior of conductive polymers and natural rubbers.  
Investigations with x-ray absorption spectroscopy. Winter, Ines  
(Mathematisch-Naturwissenschaftliche Fakultät, Univ. Bonn, Bonn,  
D-53115, Germany). Universitaet Bonn, Physikalisches Institut,  
[Technical Report] BONN-IR, BONN-IR-95-29, 1-126 (German) 1995.  
CODEN: UBPIEQ. ISSN: 0172-8741.
- AB The thermal aging of natural rubbers and modified polythiophene  
salts were investigated by x-ray absorption spectroscopy. XANES  
(x-ray absorption near edge structure) measurements at the S, P, and  
Cl K-edge were used to monitor chain modifications. The absorption  
spectra were compared with monomers and model compds. Thermal  
stress of thiophene polymers caused counter-ion degrdn. with  
increasing size of alkyl side chains.
- IT 98-11-3, Benzenesulfonic acid, uses  
(dopant; thermal behavior of conductive polymers and natural  
rubbers detd. by x-ray absorption spectroscopy)
- RN 98-11-3 HCA  
CN Benzenesulfonic acid (8CI, 9CI) (CA INDEX NAME)



- IT 126213-51-2  
(doped; thermal behavior of conductive polymers and natural  
rubbers detd. by x-ray absorption spectroscopy)
- RN 126213-51-2 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX  
NAME)
- CM 1
- CRN 126213-50-1  
CMF C6 H6 O2 S

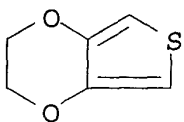


IT 126213-50-1

(monomer; thermal behavior of conductive polymers and natural rubbers detd. by x-ray absorption spectroscopy)

RN 126213-50-1 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



CC 35-8 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 39

IT 98-11-3, Benzenesulfonic acid, uses 1493-13-6

7601-90-3, Perchloric acid, uses 14946-92-0D, Tetrachloroferrate, iron salts 16919-18-9, Hexafluorophosphate 28700-80-3

(dopant; thermal behavior of conductive polymers and natural rubbers detd. by x-ray absorption spectroscopy)

IT 30604-81-0, Polypyrrole 104934-51-2, Poly(3-octylthiophene)

126213-51-2 130424-51-0 133945-68-3

(doped; thermal behavior of conductive polymers and natural rubbers detd. by x-ray absorption spectroscopy)

IT 110-02-1, Thiophene 492-97-7, 2,2'-Bithiophene 616-44-4, 3-Methylthiophene 17573-92-1, 3-Methoxythiophene 22053-93-6, 3-Thiophenehexanoic acid 65016-62-8, 3-Octylthiophene 120621-18-3, 3-Dodecyloxythiophene 126213-50-1 130746-84-8

(monomer; thermal behavior of conductive polymers and natural rubbers detd. by x-ray absorption spectroscopy)

L63 ANSWER 14 OF 14 HCA COPYRIGHT 2003 ACS

121:281976 Electroplating of conductive polymers for the metalization of insulators. de Leeuw, D. M.; Kraakman, P. A.; Bongaerts, P. F. G.; Mutsaers, C. M. J.; Klaassen, D. B. M. (Philips Research Laboratories, Prof. Holstlaan 4, AA Eindhoven, 5656, Neth.). Synthetic Metals, 66(3), 263-73 (English) 1994. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB Electrodeposition of copper was investigated on thin films of poly(3,4-ethylenedioxythiophene) (I). This conducting polymer can be processed from soln. and exhibits a high specific cond. of about 300 S/cm. N-(3-Trimethoxysilylpropyl)pyrrole was applied as a primer in order to adhere I to the substrates. The lateral propagation or front velocity of the copper front and the uniformity of the copper deposit were detd. as a function of sheet resistance

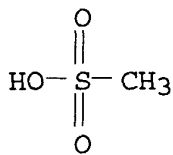
of the I films, type of I counterions, and of the temp., applied potential and compn. of the electrochem. baths. The exptl. data obtained are interpreted using a simple math. model to describe transient thickening during electrodeposition on electrodes of high ohmic resistance. A good agreement with exptl. data is obtained, esp. for the front velocity being inversely proportional to the square root of the sheet resistance. Quant. anal. of uniformity data shows that the affinity for nucleation is much higher on the conducting polymer than on the deposited metal. This conclusion is supported by activation energies as detd. from temp.-dependent metalization expts. Finally, adhesion of copper deposits as a function of copper thickness and morphol. of the substrate are discussed.

IT **75-75-2, Methanesulfonate**

(counterions; in electroplating of conductive poly(ethylenedioxythiophene) thin films with copper for metalization of insulators)

RN 75-75-2 HCA

CN Methanesulfonic acid (8CI, 9CI) (CA INDEX NAME)



IT **126213-51-2, Poly(3,4-ethylenedioxythiophene)**

(electroplating of conductive poly(ethylenedioxythiophene) thin films with copper for metalization of insulators)

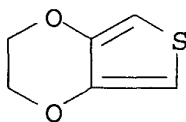
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



CC **38-2 (Plastics Fabrication and Uses)**

Section cross-reference(s): 42, 56, 76

IT **75-75-2, Methanesulfonate** 1330-69-4,

**Dodecylbenzenesulfonate** 16722-51-3, p-

**Toluenesulfonate**, uses 18777-64-5, p-

**Ethylbenzenesulfonate** 37181-39-8, Triflate 50852-11-4,

**Naphthalenesulfonate**

(counterions; in electroplating of conductive poly(ethylenedioxythiophene) thin films with copper for metalization of insulators)

- IT 7440-50-8, Copper, uses 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(electroplating of conductive poly(ethylenedioxythiophene) thin films with copper for metalization of insulators)

=> d 164 1-19 cbib abs hitstr hitind

L64 ANSWER 1 OF 19 HCA COPYRIGHT 2003 ACS

138:40267 Electrically semiconductive belts or rollers for electrophotographic devices with good heat resistance and long service life and their manufacture. Yamakawa, Masahiro; Kashiwabara, Hideki; Takiguchi, Toshihiko (Sumitomo Electric Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002363300 A2 20021218, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-168574 20010604.

AB The belts or rollers have a resin layer contg. the 2-45:98-55 blend of (A) thiophene type conductive polymers and (B) heat-resistant polymers. Thus, mixing Baytron M (ethylene dioxythiophene) 1 with Baytron C (Fe p-toluenesulfonate/MeOH) 4 and AG 2-35 (polyamide-imide varnish; 35% solids) 66.8, then with a 2% NMP DS 401 (fluoro surfactant) soln. 1.3 g, and coating the resulting varnish on the mirror-finished inner surface of a stainless pipe and heating 1 h each at 180.degree. and 220.degree. gave a seamless conductive belt.

IT 126213-51-2P, Baytron M  
(conductive polymer; elec. semiconductive belts or rollers for electrophotog. devices with good heat resistance and long service life and their manuf.)

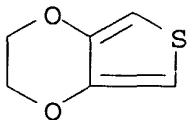
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S

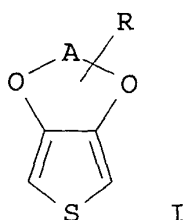


- IC ICM C08J005-00  
ICS C08J005-00; B29C041-24; F16C013-00; G03G015-00; G03G015-02;  
G03G015-16; B29K077-00; B29K081-00; C08L101-00  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 74

ST electrophotog belt roller **manuf** semiconductive  
**polythiophene** compn  
 IT 104934-50-1P, 3-Hexylthiophene polymer **126213-51-2P**,  
 Baytron M  
 (conductive polymer; elec. semiconductive belts or rollers for  
 electrophotog. devices with good heat resistance and long service  
 life and their manuf.)

L64 ANSWER 2 OF 19 HCA COPYRIGHT 2003 ACS  
 137:295387 Preparation of stereoselectively substituted thiophene  
 monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom  
 showing high electric conductivity, visible light transmittance and  
 good processability. Groenendaal, Lambertus; Louwet, Frank; Zotti,  
 Gianni (Agfa-Gevaert, Belg.). PCT Int. Appl. WO 2002079295 A1  
 20021010, 27 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ,  
 BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ,  
 EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
 MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
 TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,  
 KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE,  
 DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE,  
 SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO  
 2002-EP3023 20020319. PRIORITY: EP 2001-94 20010329.

GI



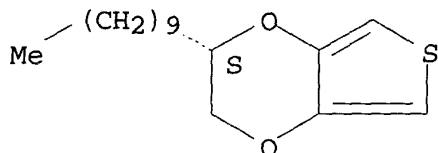
AB Thiophene compd. represented by a formula I comprising a C2-C5  
 alkylene bridge; a stereoselectively substituted, linear or branched  
 C2-C24 alkyl, C3-C18 cycloalkyl, C1-C18 alkoxy or polyethyleneoxide  
 group (optionally with at least one substituent selected from the  
 group consisting of an alc., amide, ether, ester or  
**sulfonate** group) or an optionally substituted aryl group  
 having at least one chiral center substituted at said C2-C5 alkylene  
 bridge; polymers derived therefrom; a process for polyimg. a  
 thiophene according to formula I, optionally chem. or electrochem.;  
 and dispersions, pastes and layers contg. polymers derived  
 therefrom.  
 IT **468757-55-3P 468757-57-5P 468757-58-6P**  
**468757-59-7P**  
 (monomer; prepn. of stereoselectively substituted thiophene

monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom showing high elec. cond., visible light transmittance and good processability)

RN 468757-55-3 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2-decyl-2,3-dihydro-, (2S)- (9CI) (CA INDEX NAME)

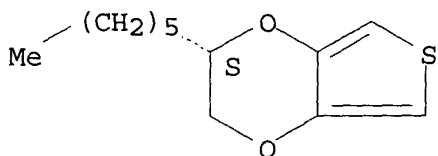
Absolute stereochemistry. Rotation (-).



RN 468757-57-5 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2-hexyl-2,3-dihydro-, (2S)- (9CI) (CA INDEX NAME)

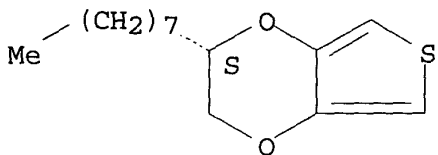
Absolute stereochemistry. Rotation (-).



RN 468757-58-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-octyl-, (2S)- (9CI) (CA INDEX NAME)

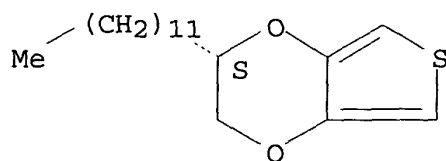
Absolute stereochemistry. Rotation (-).



RN 468757-59-7 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2-dodecyl-2,3-dihydro-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



IT 468757-60-0P 468757-61-1P 468757-62-2P  
468757-63-3P

(prepn. of stereoselectively substituted thiophene monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom showing high elec. cond., visible light transmittance and good processability)

RN 468757-60-0 HCA

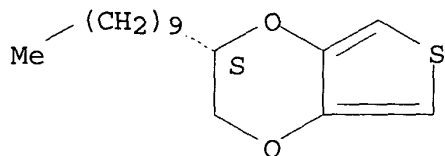
CN Thieno[3,4-b]-1,4-dioxin, 2-decyl-2,3-dihydro-, (2S)-, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 468757-55-3

CMF C16 H26 O2 S

Absolute stereochemistry. Rotation (-).



RN 468757-61-1 HCA

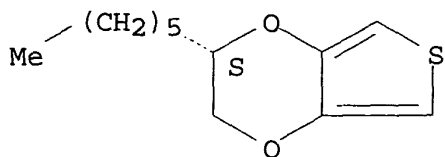
CN Thieno[3,4-b]-1,4-dioxin, 2-hexyl-2,3-dihydro-, (2S)-, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 468757-57-5

CMF C12 H18 O2 S

Absolute stereochemistry. Rotation (-).



RN 468757-62-2 HCA

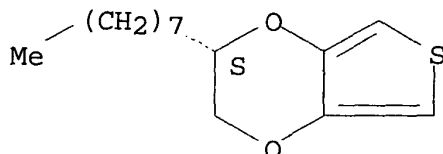
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-octyl-, (2S)-, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 468757-58-6

CMF C14 H22 O2 S

Absolute stereochemistry. Rotation (-).



RN 468757-63-3 HCA

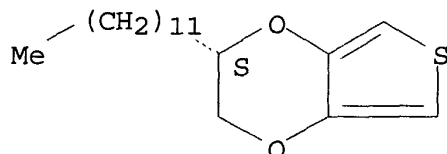
CN Thieno[3,4-b]-1,4-dioxin, 2-dodecyl-2,3-dihydro-, (2S)-, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 468757-59-7

CMF C18 H30 O2 S

Absolute stereochemistry. Rotation (-).



IC ICM C08G061-12

ICS C07D495-04

CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 73, 76

IT Conducting polymers

(**polythiophenes**; **prepn.** of stereoselectively substituted thiophene monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom showing high elec. cond., visible light transmittance and good processability)

IT 50851-57-5, Poly(**styrenesulfonic acid**)

(dopant; **prepn.** of stereoselectively substituted thiophene monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom showing high elec. cond., visible light transmittance and good processability)

IT 468757-55-3P 468757-57-5P 468757-58-6P

468757-59-7P

(monomer; **prepn.** of stereoselectively substituted thiophene monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom showing high elec. cond., visible light transmittance and good



processability)

IT 468757-60-0P 468757-61-1P 468757-62-2P  
468757-63-3P

(prepn. of stereoselectively substituted thiophene monomers and poly(3,4-alkenyldioxythiophenes) derived therefrom showing high elec. cond., visible light transmittance and good processability)

L64 ANSWER 3 OF 19 HCA COPYRIGHT 2003 ACS

137:233087 **Manufacture of novel polythiophene**

dispersions and their use. Jonas, Friedrich; Kirchmeyer, Stephan (Bayer Aktiengesellschaft, Germany). PCT Int. Appl. WO 2002072660 A1 20020919, 27 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2002-EP2066 20020227. PRIORITY: DE 2001-10111790 20010312.

AB The dispersions or solns. contg. polythiophene+ An- (An = anion of org. polymeric acid) ion complexes in org. solvents that are H2O-free or with low H2O content are manufd. by adding a H2O-miscible org. solvent or solvent mixt. to an aq. dispersion or soln. contg. (un)substituted polythiophenes, removing H2O completely or partially and, optionally, dilg. the resulting dispersion or soln. with org. solvents. The resulting dispersions or solns. are useful for producing elec. conductive substrates, as antistatic agents, for manuf. of solid electrolytes and in electroluminescent devices. For example, stirring an aq. soln. of **polystyrenesulfonic** acid, K2S2O8, Fe2(SO4)3 and 3,4-ethylenedioxythiophene at ambient temp., adding anion and cation exchange resins, stirring the mixt. and removing the solids by filtration gave a soln. of polythiophene complex salts. Adding AcNMe2 to the soln. and removing AcNMe2/H2O mixt. by distn. gave a soln. which was dild. with EtOH, coated on a polyester film and dried to give a clear, elec. conductive film.

IT 126213-51-2DP, 3,4-Ethylenedioxythiophene polymer, compd. with **polystyrenesulfonic** acid

(coating; **manuf. of novel polythiophene** dispersions in water-miscible solvents and elec. conductive coatings)

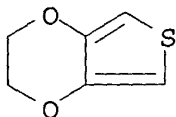
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



- IC ICM C08G061-12  
ICS H01B001-12
- CC 35-7 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 76
- ST polythiophene **polystyrenesulfonic** acid salt dispersion  
manuf coating conductive film
- IT Coating materials  
(elec. conductive; **manuf.** of novel **polythiophene** dispersions in water-miscible solvents and)
- IT Antistatic agents  
(**manuf.** of novel **polythiophene** dispersions in water-miscible solvents and elec. conductive coatings)
- IT Electroluminescent devices  
(**manuf.** of novel **polythiophene** dispersions in water-miscible solvents for)
- IT Solid electrolytes  
(**manuf.** of novel **polythiophene** dispersions in water-miscible solvents for **manuf.** of)
- IT Conducting polymers  
(**polythiophenes**; **manuf.** of novel **polythiophene** dispersions in water-miscible solvents and elec. conductive coatings)
- IT 50851-57-5DP, **Polystyrenesulfonic** acid, compd. with ethylenedioxythiophene polymer **126213-51-2DP**, 3,4-Ethylenedioxythiophene polymer, compd. with **polystyrenesulfonic** acid  
(coating; **manuf.** of novel **polythiophene** dispersions in water-miscible solvents and elec. conductive coatings)
- IT 127-19-5, Dimethylacetamide  
(solvent; **manuf.** of novel **polythiophene** dispersions in water-miscible solvents and elec. conductive coatings)
- L64 ANSWER 4 OF 19 HCA COPYRIGHT 2003 ACS
- 137:63566 Synthesis and characterization of poly(p-phenylenevinylene) based alternating copolymers for light emitting diodes. Jin, Sung-Ho; Jung, Joong-Eun; Yeom, In-Suk; Moon, Seong-Bae; Koh, Kwangnak; Kim, Sung-Hoon; Gal, Yeong-Soon (Department of Chemistry Education, Pusan National University, Pusan, 609-735, S. Korea). European Polymer Journal, 38(5), 895-901 (English) 2002. CODEN: EUPJAG. ISSN: 0014-3057. Publisher: Elsevier Science Ltd..
- AB A series of p-phenylenevinylene and arom. amine based alternating copolymers, poly(2,5-dihexyl-1,4-phenylenevinylene-N-phenyl-4',4''-diphenylene vinylene) (I) and poly(2-methoxy-5-(2'-ethylhexyloxy)-1,4-phenylenevinylene-alt-N-phenyl-4'',4'''-diphenylenevinylene)

(II) were prep'd. via Horner-Wittig-Emmons reaction. The polymers are sol. in org. solvents and solns. were spin-cast onto ITO substrates obtaining films that are free of defects. The copolymers have strong optical absorption bands at 418 and 443 nm, due to .pi.-.pi.\* transitions of the conjugated backbone. The phenylenevinylene moiety is the emitter and the arom. amine is the hole transport moiety that also enhances the thermal stability of the copolymers up to 425.degree.. A light emitting diode (LED) was fabricated by placing I or II between ITO and Ca/Al electrodes and using a poly(2,3-ethylenedioxythiophene)-poly(**styrenesulfonate**) PEDOT-PSS layer as charge injection layer. The forward bias turn-on voltage of the LED was 4.4 V for I and 2.6 V for II. The emission colors could be tuned from 488 to 506 nm under an applied elec. field, and the effect is attributed to alkyl and alkyloxy substituents.

IT 126213-51-2, PEDOT  
 (poly(**styrenesulfonate**) charge injection layer; prepn. and electrooptical properties of poly(p-phenylenevinylene-aminophenylene)s and use as emitter/transport layer in light emitting diodes)

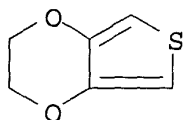
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



CC 35-7 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 36, 73, 76

IT Conducting polymers  
 (polythiophenes; prepn. and electrooptical properties of poly(p-phenylenevinylene-aminophenylene)s and use as emitter/transport layer in light emitting diodes)

IT 126213-51-2, PEDOT  
 (poly(**styrenesulfonate**) charge injection layer; prepn. and electrooptical properties of poly(p-phenylenevinylene-aminophenylene)s and use as emitter/transport layer in light emitting diodes)

L64 ANSWER 5 OF 19 HCA COPYRIGHT 2003 ACS

136:386521 Preparation of PEDOT doped by surface initiated PSS films. Zhou, Qingye; Mulfort, Karen L.; Ryu, Jae (Elecon, Inc., Chelmsford, MA, 01824, USA). Polymeric Materials Science and Engineering, 86, 57-58 (English) 2002. CODEN: PMSDGD. ISSN: 0743-0515. Publisher:

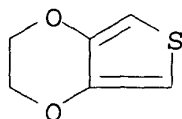
American Chemical Society.

- AB Polymn. of 3,4-ethylenedioxythiophene (EDOT) was carried out in a well defined poly(4-**styrenesulfonate**) (PSS) film as template. The 4-**styrenesulfonate** monomer was polymd. from an activated initiator layer to form a PSS layer of various d. and thickness, which then defined the PSS:PEDOT structure after EDOT diffused into the PSS layer and was polymd. chem. or electrochem. The initiator layer consists of a Si wafer with a surface layer of styrylethyltrimethoxysilane and potassium persulfate, upon which **styrenesulfonate** polymn. took place. The layer turned blue upon EDOT polymn. in PSS, same as obsd. in aq. polymn. of EDOT in presence of PSS. Hall effect measurements of the PEDOT-PSS films indicate a change in cond. with polymer d. The highly oriented PSS:PEDOT films has lower cond. in the horizontal direction.
- IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer (prepn. of poly(ethylenedioxythiophene) templated by polystyrene layer tethered onto initiator and effect of orientation and d. on cond. of PEDOT)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



- CC 35-7 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36, 76
- ST ethylenedioxythiophene polymn **polystyrenesulfonate** tethered template silicon wafer; initiator immobilization silicon styrylethyltrimethoxysilane potassium persulfate; **styrenesulfonate** radical polymn immobilized initiator tethered template; cond polyethylenedioxythiophene orientation structure **polystyrenesulfonate** template; conducting polymer orientation density cond Hall effect
- IT Conducting polymers  
(**polythiophenes**; **prepn.** of poly(ethylenedioxythiophene) templated by polystyrene layer tethered onto initiator and effect of orientation and d. on cond. of PEDOT)
- IT **126213-51-2P**, 3,4-Ethylenedioxythiophene homopolymer (prepn. of poly(ethylenedioxythiophene) templated by polystyrene layer tethered onto initiator and effect of orientation and d. on cond. of PEDOT)
- IT 49718-51-6P, Poly(4-**styrenesulfonate**)

(template; prepn. of poly(ethylenedioxythiophene) templated by polystyrene layer tethered onto initiator and effect of orientation and d. on cond. of PEDOT)

L64 ANSWER 6 OF 19 HCA COPYRIGHT 2003 ACS

136:240208 Fabrication of capacitor. Fujiyama, Teruki; Nitta, Yukihiro; Mori, Yoshiyuki; Murata, Yuki; Yoshino, Takeshi; Hayashi, Takayuki; Harada, Akira; Horie, Minoru; Yamashita, Ichiro (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002075800 A2 20020315, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-268258 20000905.

AB A method for fabricating a dimensionally accurate and reliable capacitor having a conductive polymer such as polypyrrole, polyaniline, **sulfonated** polyaniline, polythiophene, polyethylenedioxythiophene, or polystyrene **sulfonic** acid involves rolling a cathode foil, separator, anode foil, and separator using a rolling core having a slit for holding. Specifically, the separator may comprise polyethylene terephthalate or polybutylene terephthalate.

IT **126213-51-2**, Polyethylenedioxythiophene  
(fabrication of polymer electrolyte capacitor by rolling electrode foils and separator using rolling core)

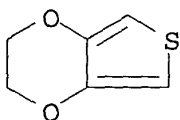
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM H01G009-048

ICS H01G009-02; H01G009-028; H01G009-04

CC 76-10 (Electric Phenomena)

IT 24968-12-5, Polybutylene terephthalate 25038-59-9, Polyethylene terephthalate, uses 25233-34-5, **Polythiophene** 30604-81-0, Polypyrrole 50851-57-5, Polystyrene **sulfonic** acid **126213-51-2**, Polyethylenedioxythiophene  
(**fabrication** of polymer electrolyte capacitor by rolling electrode foils and separator using rolling core)

L64 ANSWER 7 OF 19 HCA COPYRIGHT 2003 ACS

135:227611 Electrochemical and luminescent properties of poly(fluorene) derivatives for optoelectronic applications. Charas, Ana; Morgado, Jorge; Martinho, Jose M. G.; Alcacer, Luis; Cacialli, Franco (Instituto Superior Tecnico, Lisbon, P-1049-001, Port.). Chemical

Communications (Cambridge, United Kingdom) (13), 1216-1217 (English) 2001. CODEN: CHCOFS. ISSN: 1359-7345. Publisher: Royal Society of Chemistry.

AB We report the synthesis of novel alternating copolymers of the kind A-alt-B, where A is a dialkylfluorene unit and B is an arom. moiety unit which is varied in order to change the position of the frontier energy levels; in particular we find that the B unit thiophene S,S-dioxide is particularly effective at increasing the polymer electron affinity and ionization potential.

IT 126213-51-2

(electroluminescent properties of dialkylfluorene-thiophene derivs. copolymers in LED device contg. of)

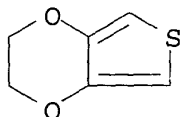
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 35, 73

IT Polymers, **preparation**

(**polythiophenes**, fluorene group-contg.; synthesis, electrochem. and luminescent properties of dialkylfluorene-thiophene derivs. copolymers)

IT 50851-57-5, Polystyrene **sulfonic acid**

(electroluminescent properties of dialkylfluorene-thiophene derivs. copolymers in LED device contg. of)

IT 126213-51-2

(electroluminescent properties of dialkylfluorene-thiophene derivs. copolymers in LED device contg. of)

L64 ANSWER 8 OF 19 HCA COPYRIGHT 2003 ACS

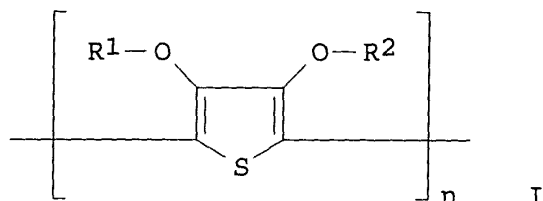
134:318811 Liquid crystal alignment layer. Tahon, Jean-pierre; Cloots, Tom; Baeuerle, Roger (Agfa-Gevaert Naamloze Vennootschap, Belg.).

PCT Int. Appl. WO 2001029611 A1 20010426, 26 pp. DESIGNATED STATES:

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-EP9905

20001005. PRIORITY: EP 1999-203378 19991015.

GI



AB This patent disclosed a method of making a liq. crystal alignment layer comprising the steps of: (i) providing a layer on a substrate, the layer comprising a polythiophene I (R1 and R2 each independently represent H or a C1-C4 alkyl group or together represent an optionally substituted C1-C4 alkylene group or cycloalkylene group); and (ii) mech. rendering the layer liq. crystal aligning. This patent also disclosed a liq. crystal display device incorporating the above-mentioned liq. crystal alignment layer.

IT **126213-51-2P**, 3,4-Ethylenedioxy-thiophene homopolymer (doped with poly(styrene **sulfonic** acid); alignment layer for liq. crystal display)

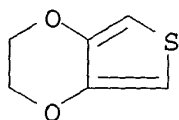
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM G02F001-1337

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38

IT Polymers, **preparation**  
(**polythiophenes**; liq. crystal display with polythiophene alignment layer)

IT 50851-57-5, Poly(styrene **sulfonic** acid)  
(dopant for polythiophene alignment layer for liq. crystal display)

IT **126213-51-2P**, 3,4-Ethylenedioxy-thiophene homopolymer (doped with poly(styrene **sulfonic** acid); alignment

layer for liq. crystal display)

L64 ANSWER 9 OF 19 HCA COPYRIGHT 2003 ACS

134:186983 Method of making an electric conductor pattern from an organic polymer on a support. Cloots, Tom; Louwet, Frank; Andriesen, Ron; Van, Thillo Etienne (Agfa-Gevaert N.V., Belg.). Eur. Pat. Appl. EP 1079397 A1 20010228, 10 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-202705 19990823.

AB A method of making an elec. conductive pattern on a support is disclosed. The support is provided with a polymer layer contg. a polythiophene, a polyanion and a di- or polyhydroxy org. compd. Said layer was characterized by an initial surface resistivity (SRi) having a value which is  $>10^4$  .OMEGA./box., or more preferably  $>10^6$  .OMEGA./box.. By heating selected areas of the polymer layer, the surface resistivity of these areas is reduced to SRi/.DELTA. wherein .DELTA. is at least 10, preferably at least 103 and more preferable at least 105. The elec. conductive pattern thus obtained can be used as an electronic circuit for making an elec. or semiconductor device such as a printed circuit board, an integrated circuit, a display, an electroluminescent device or a photovoltaic cell.

IT 126213-51-2P, Poly(3,4-ethylenedioxy-thiophene)  
(conducting polymer for patterned elec. conductors)

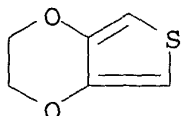
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

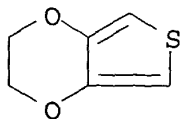
CMF C6 H6 O2 S



IT 126213-50-1, 3,4-Ethylenedioxythiophene  
(in **prepn.** of conducting **polythiophene**)

RN 126213-50-1 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)



IC ICM H01B001-12

ICS H05B033-26; B23K026-00; H05K003-00



- CC 76-2 (Electric Phenomena)  
Section cross-reference(s): 35, 38
- IT Anions  
(polymeric; in **prepn.** of conducting **polythiophene**)
- IT Conducting polymers  
(**prepn.** of conducting **polythiophene**)
- IT 126213-51-2P, Poly(3,4-ethylenedioxy-thiophene)  
(conducting polymer for patterned elec. conductors)
- IT 7775-27-1, Sodium peroxodisulfate 10028-22-5, Ferric sulfate  
25249-60-9, Vinylidene chloride-methylacrylate-itaconic acid  
copolymer 50851-57-5, Polystyrene **sulfonic acid**  
65545-80-4, Zonyl FSN100 126213-50-1, 3,4-  
Ethylenedioxythiophene  
(in **prepn.** of conducting **polythiophene**)
- IT 11114-17-3, Fluorad FC430  
(surfactant; in **prepn.** of conducting **polythiophene**)
- L64 ANSWER 10 OF 19 HCA COPYRIGHT 2003 ACS  
134:42533 Synthesis, Photophysical Properties, and Photovoltaic Devices  
of Oligo(p-phenylene vinylene)-fullerene Dyads. Peeters, Emiel; van  
Hal, Paul A.; Knol, Joop; Brabec, Christoph J.; Sariciftci, N.  
Serdar; Hummelen, J. C.; Janssen, Rene A. J. (Laboratory of  
Macromolecular and Organic Chemistry, Eindhoven University of  
Technology, Eindhoven, 5600 MB, Neth.). Journal of Physical  
Chemistry B, 104(44), 10174-10190 (English) 2000. CODEN: JPCBFK.  
ISSN: 1089-5647. Publisher: American Chemical Society.
- AB The synthesis of a homologous series of oligo(p-phenylene  
vinylene)-fulleropyrrolidines (OPVn-C60, n = 1-4, where n is the no.  
of Ph rings) was carried out. The photophys. properties of these  
donor-acceptor dyads and the corresponding model compds.,  
.alpha.,.omega.-dimethyl-2,5-bis(2-(S)-methylbutoxy)-1,4-phenylene  
vinylene oligomers (OPVn, n = 2-4) and N-methylfulleropyrrolidine  
(MP-C60) were studied as a function of conjugation length in  
solvents of different polarity and as thin films. Fast singlet  
energy transfer occurs after photoexcitation of the OPVn moiety of  
the dyads toward the fullerene moiety in an apolar solvent.  
Photoexcitation of the dyads in a polar solvent results in electron  
transfer for OPV3-C60 and OPV4-C60, and to some extent for OPV2-C60,  
but not for OPV1-C60. These results are compared to results  
obtained for mixts. of OPVn and MP-C60 in the same solvents. The  
solvent-dependent change in free energy for charge sepn. of the  
donor-acceptor systems was calcd. from the Weller equation, and the  
rate const. for energy and electron transfer were derived from the  
fluorescence lifetime and quenching. In a polar solvent, electron  
transfer in these dyads is likely to occur via a two-step process,  
i.e., a fast singlet energy transfer prior to charge sepn. In thin  
solid films of OPV3-C60 and OPV4-C60, a long-lived charge-sepd.  
state is formed after photoexcitation. The long lifetime in the  
film is attributed to the migration of charges to different mols. A  
flexible photovoltaic test device was fabricated from OPV4-C60

between Al and poly(ethylenedioxythiophene)-poly(styrene sulfonate) (PEDOT-PSS)-covered ITO electrodes.

IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(prepn. and electron transfer vs. conjugation length and fluorescence of oligo(p-phenylene vinylene)-fullerenes for photovoltaic energy conversion)

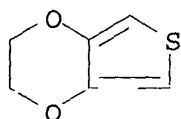
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



CC 35-7 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36, 76

IT Polymers, uses  
(polythiophenes, ethylenedioxy-; prepn. and electron transfer vs. conjugation length and fluorescence of oligo(p-phenylene vinylene)-fullerenes for photovoltaic energy conversion)

IT 7429-90-5, Aluminum, uses 50851-57-5 50926-11-9, Indium tin oxide 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
(prepn. and electron transfer vs. conjugation length and fluorescence of oligo(p-phenylene vinylene)-fullerenes for photovoltaic energy conversion)

IT 68-12-2, DMF, reactions 95-71-6, Methylhydroquinone 107-97-1, N-Methylglycine 122-52-1, Triethyl phosphite 123-31-9, Hydroquinone, reactions 128-08-5, N-Bromosuccinimide 865-47-4 7647-01-0, Hydrogen chloride, reactions 38261-81-3, (S)-2-Methylbutyl-p-toluenesulfonate 99685-96-8, C60 Fullerene  
(prepn. and electron transfer vs. conjugation length and fluorescence of oligo(p-phenylene vinylene)-fullerenes for photovoltaic energy conversion)

L64 ANSWER 11 OF 19 HCA COPYRIGHT 2003 ACS

131:245554 Manufacture of multilayer photovoltaic or photoconductive devices. Petritsch, Klaus; Granstrom, Magnus (Cambridge Display Technology Limited, UK). PCT Int. Appl. WO 9949525 A1 19990930, 32 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,

TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-GB349 19990202. PRIORITY: GB 1998-6066 19980320.

AB The invention concerns optically absorptive photonic devices and in particular photovoltaic and photoconductive devices. It is particularly concerned with devices formed from multiple semiconducting layers, e.g. org. semiconducting polymers. Such a device having two central semiconductive layers are prep'd. by laminating the layers together so as to form a mixed layer between the first and second semiconductive layers, while retaining at least some of the first and second semiconductive layers on either side of the mixed layer.

IT 126213-51-2

(structure and manuf. of multilayer semiconducting polymer photovoltaic and photoconductive devices)

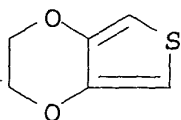
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM H01L051-20

ICS H01L051-30; H01L051-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 76

IT 574-93-6, Phthalocyanine 9033-83-4, Polyphenylene 25233-34-5, **Polythiophene** 50851-57-5, Poly(**styrenesulfonic acid**) 66280-99-7, Polythienylenevinylene 78675-98-6D, Squaraine, polymers 91201-85-3, Polyisothianaphthene 96638-49-2, Poly(phenylene vinylene) 104934-50-1, P 3HT 126213-51-2 141807-85-4, Poly[3-(4-octylphenyl)thiophene] 213749-92-9 (structure and **manuf.** of multilayer semiconducting polymer photovoltaic and photoconductive devices)

L64 ANSWER 12 OF 19 HCA COPYRIGHT 2003 ACS

131:164272 Electrolytic capacitor and its manufacture. Saito, Kazuyo; Nitta, Yukihiro; Tada, Hiroshi; Iwamoto, Shigeyoshi (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 938108 A2 19990825, 17 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-100927 19990120. PRIORITY: JP 1998-15269 19980128; JP 1998-350072 19981209.

AB An electrolytic capacitor includes (a) a capacitor element having a pos. electrode, a neg. electrode, and a solid org. conductive material disposed between the pos. electrode and the neg. electrode; (b) an electrolyte; (c) a case for accommodating the capacitor element and the electrolyte; and (d) a sealing member disposed to cover the opening of the case. The solid org. conductive material contains an org. semiconductor and/or a conductive polymer. An electrolytic capacitor having excellent impedance characteristic, small leakage current, excellent reliability, and high dielec. strength is obtained.

IT 126213-51-2

(manuf. of electrolytic capacitors contg.)

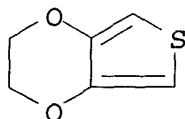
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM H01G009-02

CC 76-10 (Electric Phenomena)

Section cross-reference(s): 38

IT 56-81-5, 1,2,3-Propanetriol, processes 62-23-7, p-Nitrobenzoic acid 69-65-8, Mannite 88-75-5 96-48-0 107-21-1, 1,2-Ethanediol, processes 552-16-9, o-Nitrobenzoic acid 1518-16-7D, TCNQ, complexes 1623-15-0, Monobutyl phosphate 3385-41-9, Diammonium adipate 7429-90-5, Aluminum, processes 7440-44-0, Carbon, processes 7664-38-2, Phosphoric acid, processes 7727-54-0, Ammonium persulfate 7803-65-8 10028-22-5, Ferric sulfate 10043-35-3, Boric acid, processes 13445-49-3, Peroxydisulfuric acid ([ (HO)S(O)2]2O2) 25233-30-1, Polyaniline 25233-30-1D, Polyaniline, **sulfonated** 25233-34-5, **Polythiophene** 25233-34-5D, **Polythiophene, sulfonated** 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, **sulfonated** 50905-10-7, 1,6-Decanedicarboxylic acid 77214-82-5 88107-08-8 92538-40-4 117920-72-6 126213-51-2 127171-87-3, Tetramethyl ammonium phthalate, processes 167552-54-7, processes (manuf. of electrolytic capacitors contg.)

L64 ANSWER 13 OF 19 HCA COPYRIGHT 2003 ACS

130:352724 Structure-property relationships of bis(ethylenedioxythienyl)naphthalene systems. Sankaran, Balasubramanian; Tan, Loon-Seng (Universal Technology Corporation,

Dayton, OH, 45432-2600, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 40(1), 189-190 (English) 1999. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.

AB Bis(ethylenedioxythienylnaphthalene) monomers were prepd. and electrochem. polymn. was carried out to obtain electroactive conducting polymers. 2,6-Dihydroxynaphthalene was treated with **trifluoromethanesulfonic** acid anhydride in pyridine at 0.degree. under argon to yield 2,6-trifluoromethanesulfonylnaphthalene (I); 2-(tributylstannyl)ethylenedioxythiophene (II) was synthesized using n-butyllithium and tributylstannylchloride; I was still coupled with II in the presence of tetrakis(triphenylphosphine)palladium catalyst in 1,4-dioxane to yield the monomer, 2,6-bis(2-ethylenedioxythienyl)naphthalene (2,6-BEDOT)N. Similar sequence of reactions was used to prep. the other monomers, 1,5-bis(2-ethylenedioxythienyl)naphthalene (1,5-BEDOT)N, 1,5-dimethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene (1,5-DM-2,6-BEDOT)N, 1,5-dimethoxy-4,8-bis(2-ethylenedioxythienyl)naphthalene (1,5-DM-4,8-BEDOT)N, and 1,4,5,8-tetramethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene (1,4,5,8-TM-BEDOT)N. The monomers were electrochem. polymd. onto gold button or ITO electrodes and the redox behavior of the polymers was studied in monomer-free electrolyte soln. and in-situ spectro-optoelectrochem. studies were carried out to det. the band gap. The band gap of the conducting polymers ranged from 2.2 eV to 3.4 eV; the (2,6-BEDOT)N polymer has a coplanar geometry, and is less sterically hindered as there are no methoxy groups to add to the strain of the mol. leading to a narrower band gap.

IT **225220-41-7P**, 1,4,5,8-Tetramethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene homopolymer (P(1,4,5,8-TM-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

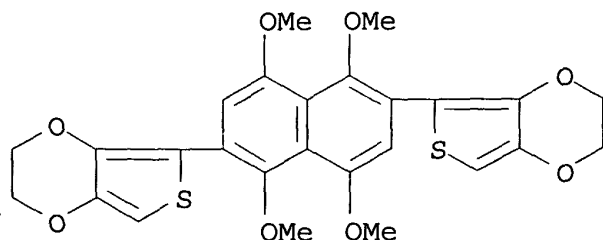
RN 225220-41-7 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(1,4,5,8-tetramethoxy-2,6-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-36-0

CMF C26 H24 O8 S2



IT 225220-38-2P

(P(1,5-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

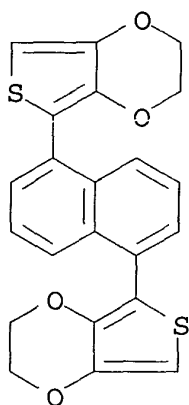
RN 225220-38-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,5-naphthalenediyl)bis[2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-33-7

CMF C22 H16 O4 S2



IT 225220-39-3P

(P(1,5-DM-2,6-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

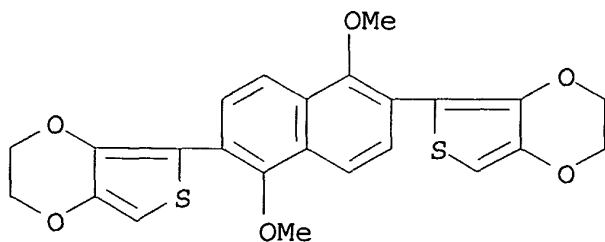
RN 225220-39-3 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(1,5-dimethoxy-2,6-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-34-8

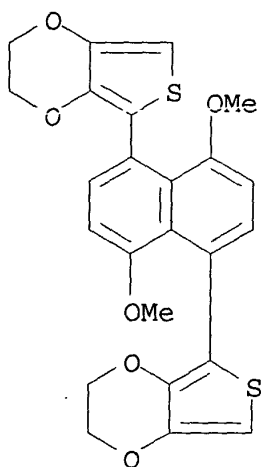
CMF C24 H20 O6 S2



IT **225220-40-6P**, 1,5-Dimethoxy-4,8-bis(2-ethylenedioxythienyl)naphthalene homopolymer  
 (P(1,5-DM-4,8-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)  
 RN 225220-40-6 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(4,8-dimethoxy-1,5-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

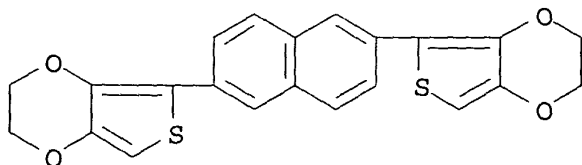
CRN 225220-35-9  
 CMF C24 H20 O6 S2



IT **225220-37-1P**  
 (P(2,6-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)  
 RN 225220-37-1 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(2,6-naphthalenediyl)bis[2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-32-6  
 CMF C22 H16 O4 S2

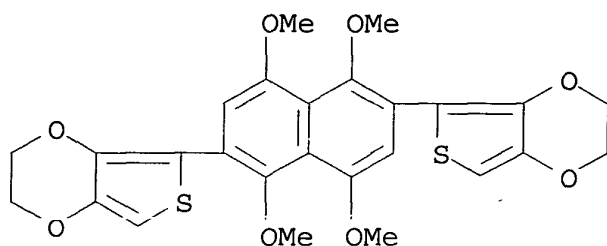


**IT 225220-36-0P**

(monomer, (1,4,5,8-TM-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

RN 225220-36-0 HCA

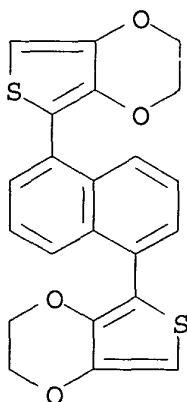
CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,4,5,8-tetramethoxy-2,6-naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)

**IT 225220-33-7P**

(monomer, (1,5-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

RN 225220-33-7 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,5-naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)

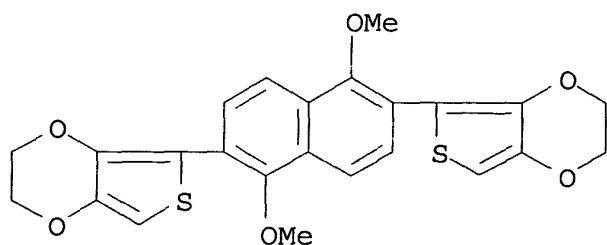
**IT 225220-34-8P**

(monomer, (1,5-DM-2,6-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

RN 225220-34-8 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,5-dimethoxy-2,6-naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)



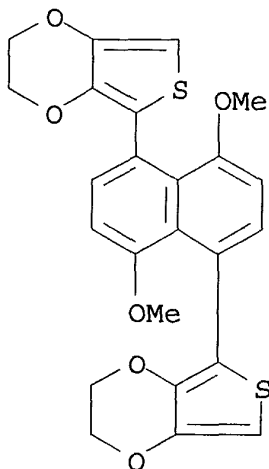


IT 225220-35-9P

(monomer, (1,5-DM-4,8-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

RN 225220-35-9 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(4,8-dimethoxy-1,5-naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)

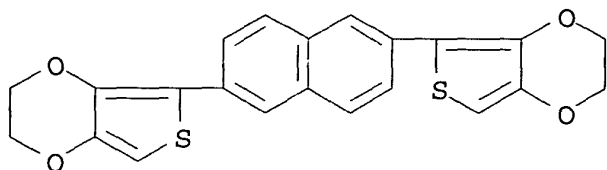


IT 225220-32-6P

(monomer, (2,6-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

RN 225220-32-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(2,6-naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)

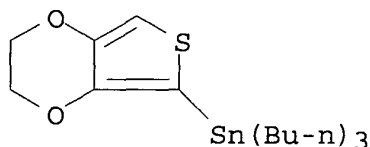


IT 175922-79-9P

(prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

RN 175922-79-9 HCA

CN Stannane, tributyl (2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl) - (9CI)  
(CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 72

IT Polymers, **preparation**

(**polythiophenes**, naphthalene-contg.; **prepn.** of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

IT 225220-41-7P, 1,4,5,8-Tetramethoxy-2,6-bis(2-ethylenedioxythienyl)naphthalene homopolymer

(P(1,4,5,8-TM-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

IT 225220-38-2P

(P(1,5-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

IT 225220-39-3P

(P(1,5-DM-2,6-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

IT 225220-40-6P, 1,5-Dimethoxy-4,8-bis(2-ethylenedioxythienyl)naphthalene homopolymer

(P(1,5-DM-4,8-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

IT 225220-37-1P

(P(2,6-BEDOT)N; prepn. of bis(ethylenedioxythienyl)naphthalene) monomers and electrochem. polymn. and band gap-structure

- relations of electroactive polymers)
- IT 225220-36-0P  
(monomer, (1,4,5,8-TM-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)
- IT 225220-33-7P  
(monomer, (1,5-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)
- IT 225220-34-8P  
(monomer, (1,5-DM-2,6-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)
- IT 225220-35-9P  
(monomer, (1,5-DM-4,8-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)
- IT 225220-32-6P  
(monomer, (2,6-BEDOT)N; prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)
- IT 109-72-8, n-Butyllithium, reactions 358-23-6,  
**Trifluoromethanesulfonic** acid anhydride 581-43-1,  
2,6-Dihydroxynaphthalene 1461-22-9, Tributylstannyl chloride  
88818-38-6, 4,8-Dibromo-1,5-dimethoxynaphthalene 91394-96-6,  
2,6-Dibromo-1,5-dimethoxynaphthalene 123707-36-8,  
2,6-Dibromo-1,4,5,8-tetramethoxynaphthalene  
(prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)
- IT 175922-79-9P 225220-31-5P, 2,6-  
Trifluoromethanesulfonylnaphthalene  
(prepn. of bis(ethylenedioxythienylnaphthalene) monomers and electrochem. polymn. and band gap-structure relations of electroactive polymers)

L64 ANSWER 14 OF 19 HCA COPYRIGHT 2003 ACS

129:68905 Scratch-resistant, transparent, electrically conductive, organic-inorganic hybrid coating material. Mager, Michael; Jonas, Friedrich; Eiling, Aloys; Guntermann, Udo (Bayer A.-G., Germany). Ger. Offen. DE 19650147 A1 19980610, 8 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1996-19650147 19961204.

AB The title compns., useful as antistatic coatings esp. for glass substrates, comprise elec. conductive org. polymers, specifically **polythiophenes**, reaction **products** of polyfunctional organosilanes and, optionally, other ingredients, e.g., metal (alk)oxides or hydroxides, and solvents. For example, mixing 10 g Si[(CH<sub>2</sub>)<sub>2</sub>SiMe<sub>2</sub>OH] with EtOH 25, (EtO)<sub>4</sub>Si 20, H<sub>2</sub>O 5 and HCO<sub>2</sub>H (catalyst) 3 mL in that order gave a mixt. which was filtered

after 10 min and stirred for 80 min at ambient temp. to give a coating soln. Ethylene glycol (40 mL) was added with stirring to 40 mL of the above soln. followed by 40 mL BuOH and 60 mL of 1.3% aq. poly(3,4-ethylenedioxythiophene)/poly(**styrenesulfonate**) soln., the whole was stirred for 10 min, sprayed (with N as a carrier gas) on a glass plate and cured for 15 min at 160.degree. to give 1.7-.mu.m-thick transparent film having surface resistance 4200 .OMEGA./box., transmission (400-700 nm) >83% and hardness >7H.

IT **126213-51-2**, 3,4-Ethylenedioxythiophene polymer  
(1.3% aq. soln.; scratch-resistant, transparent, elec. conductive org.-inorg. hybrid material contg. poly(**styrenesulfonate**) and)

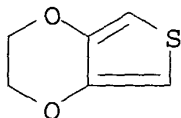
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM C08L081-02  
ICS C08K005-54; C08K003-22; C08J007-04; C09D005-24; C09D165-00;  
C09D183-14; C09D185-00; H01J029-88; H01J009-20

ICA C03C017-30; C04B041-84

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 76

ST silane polythiophene transparent elec conductive coating;  
polyethylenedioxythiophene **polystyrenesulfonate** silane  
elec conductive coating; methylhydroxysilylethylsilane  
tetraethoxysilane copolymer conductive coating polythiophene

IT **126213-51-2**, 3,4-Ethylenedioxythiophene polymer  
(1.3% aq. soln.; scratch-resistant, transparent, elec. conductive org.-inorg. hybrid material contg. poly(**styrenesulfonate**) and)

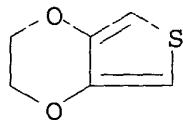
L64 ANSWER 15 OF 19 HCA COPYRIGHT 2003 ACS

128:211927 Manufacture of rigid and flexible circuits from electrically conducting connected conductor tracks on nonconducting support materials. Wolf, Gerhard-Dieter; Jonas, Friedrich (Bayer A.-G., Germany). Eur. Pat. Appl. EP 830054 A1 19980318, 6 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI. (German). CODEN: EPXXDW. APPLICATION: EP 1997-115090 19970901. PRIORITY: DE 1996-19637018 19960912.

AB The manufg. steps include coating the support material including the boreholes with a binder-contg. polymer, applying a galvanoresist in

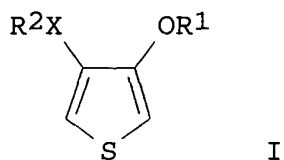
the form of a neg. conductor track image, galvanically metalizing the from galvanoresist-free surface including the boreholes in the form of a pos. conductor track image, removing the galvanoresist, and removing the polymer from the nonmetalized regions or changing the conducting polymer into a nonconducting form.

IT **126213-51-2**, Poly(3,4-ethylenedioxythiophene)  
 (in manuf. of rigid and flexible circuits from elec. conducting connected conductor tracks on nonconducting support materials)  
 RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 126213-50-1  
 CMF C6 H6 O2 S

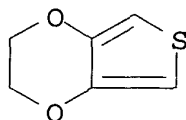


IC ICM H05K003-18  
 CC 76-14 (Electric Phenomena)  
 Section cross-reference(s): 38  
 IT 50851-57-5D, Poly(styrene **sulfonic** acid), salts  
**126213-51-2**, Poly(3,4-ethylenedioxythiophene)  
 (in manuf. of rigid and flexible circuits from elec. conducting connected conductor tracks on nonconducting support materials)  
 IT 7440-50-8, Copper, uses 25233-30-1, Polyaniline 25233-34-5,  
**Polythiophene** 30604-81-0, Polypyrrole  
 (in **manuf.** of rigid and flexible circuits from elec. conducting connected conductor tracks on nonconducting support materials)  
 L64 ANSWER 16 OF 19 HCA COPYRIGHT 2003 ACS  
 124:358419 Process for making through-hole connections by direct electroplating in double-layered circuit boards and multilayers. Wolf, Gerhard-Dieter; Jonas, Friedrich; Schomaecker, Reinhard (Bayer A.-G., Germany). Eur. Pat. Appl. EP 707440 A1 19960417, 10 pp. DESIGNATED STATES: R: CH, DE, FR, GB, IE, LI. (German). CODEN: EPXXDW. APPLICATION: EP 1995-115426 19950929. PRIORITY: DE 1994-4436391 19941012.

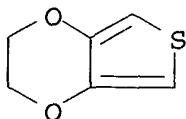
GI



- AB In prepn. of through-hole connections by depositing a conductive layer of polythiophene on the hole walls and electrodepositing Cu on the hole walls, to **form** the conductive **polythiophene** layer a microemulsion of a monomeric thiophene of formula I is used, where X = O or a single bond; and R1,R2 = H or C1-4 alkyl, or together an optionally substituted C1-4 alkylene residue or a 1,2-cyclohexylene residue. By a subsequent or simultaneous acid treatment, a conductive layer of **polythiophene** is **produced**, and then a metal is electrodeposited on this conductive base.
- IT 126213-50-1, 3,4-Ethylenedioxythiophene  
(deposition of thiophene derivs. in formation of through-hole connections in printed circuit boards)
- RN 126213-50-1 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro- (9CI) (CA INDEX NAME)

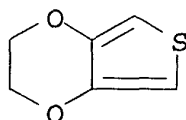


- IT 126213-51-2P, 3,4-Ethylenedioxythiophene polymer  
(**formation** of conductive layers of **polythiophenes** in **prepn.** of through-hole connections in printed circuit boards)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S



- IC ICM H05K003-42
- ICS C25D005-54

- CC 76-14 (Electric Phenomena)
- IT 126213-50-1, 3,4-Ethylenedioxythiophene  
(deposition of thiophene derivs. in formation of through-hole connections in printed circuit boards)
- IT 7440-50-8, Copper, processes  
(electrodeposition of copper on conductive **polythiophene** layers in **prepn.** of through-hole connections in printed circuit boards)
- IT 25233-34-5DP, **Polythiophene**, derivs. 126213-51-2P  
, 3,4-Ethylenedioxythiophene polymer  
(**formation** of conductive layers of **polythiophenes** in **prepn.** of through-hole connections in printed circuit boards)
- IT 7664-38-2, Phosphoric acid, processes 7664-93-9, Sulfuric acid, processes 9003-39-8, Polyvinyl pyrrolidone 50851-57-5, **Polystyrenesulfonic acid**  
(in acid treatment of thiophene derivs. in formation of through-hole connections in printed circuit boards)
- L64 ANSWER 17 OF 19 HCA COPYRIGHT 2003 ACS
- 121:191147 Antistatic coating composition. Van Thillo, Etienne; Muys, Bavo; Van, Thillo Etienne; Samijn, Rafael (Agfa-Gevaert N. V., Belg.). Eur. Pat. Appl. EP 593111 A1 19940420, 14 pp. DESIGNATED STATES: R: BE, DE, FR, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1993-202729 19930921. PRIORITY: EP 1992-203149 19921014.
- AB An aq. coating compn. suited for prodn. of an antistatic layer on a H2O resistant resin member contains as an essential antistatic component a polythiophene with conjugated polymer backbone in the presence of a polymeric polyanion compd., characterized in that the compn. also contains a dispersion of a hydrophobic polymer, the polymer having a glass transition temp. (TG) of at least 40.degree. and the compn. being capable of forming a coherent layer on drying the dispersion.
- IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene)  
(prepn. and use of, in antistatic coating for photog. material)
- RN 126213-51-2 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 126213-50-1
- CMF C6 H6 O2 S



IC ICM G03C001-89

ICS C09K003-16; H01B001-12  
 CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 IT 50851-57-5, Polystyrene **sulfonic acid**  
 (polythiophene **prepn.** in presence of)  
 IT **126213-51-2P**, Poly(3,4-ethylenedioxythiophene)  
 (prepn. and use of, in antistatic coating for photog. material)

L64 ANSWER 18 OF 19 HCA COPYRIGHT 2003 ACS  
 120:284807 Methods for **preparing polythiophene**-based antistatic films for photographic materials. Jonas, Friedrich; Krafft, Werner; Muys, Bavo (Agfa-Gevaert A.-G., Germany). Ger. Offen. DE 4211459 A1 19931007, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1992-4211459 19920406.

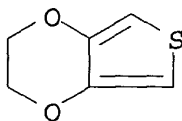
AB The title methods entail **prepg.** the **polythiophene** by oxidative polymn. using .gtoreq.1 mol of a peroxy acid salt per mol of thiophene under conditions which leave the resulting. aq. formulation of the polythiophene free of >60% of the salt. The antistatic film is subsequently formed on the photog. material by applying an aq. or mixed. aq.-org. formulation of the polythiophene to it. A cover layer may be formed over the antistatic film.

IT **126213-51-2**  
 (photog. film with antistatic material from)

RN 126213-51-2 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1  
 CMF C6 H6 O2 S

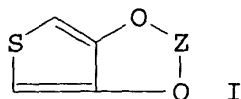


IC ICM G03C001-85  
 ICS G03C001-89; C09K003-16  
 ICA C08G061-12; C08G075-00  
 CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 76  
 IT 50851-57-5, Polystyrene **sulfonate 126213-51-2**  
 (photog. film with antistatic material from)

L64 ANSWER 19 OF 19 HCA COPYRIGHT 2003 ACS  
 119:73389 **Preparation of poly[(alkylenedioxy)thiophenes]**. Heywang, Gerhard; Jonas, Friedrich (Bayer A.-G., Germany). Ger. Offen. DE 4118704 A1 19921210, 4 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1991-4118704 19910607.



GI



AB The title polymers are prepd. by electrochem. polymn. of thiophenes (I; Z = C1-4 alkylene, C5-7 cycloalkylene, optionally bearing alkyl or Ph groups) in the presence of the glycol derivs. R2O(CH2CHR1O)nR3 (R1 = H, Me; R2, R3 = H, alkyl, acyl; n = 1-5). Polymn. of 0.14 mol 3,4-(ethylenedioxy)thiophene (II) in the presence of 6.5 g 2,7-Cl0H6(SO3H.Et3N)2, 50 mL diethylene glycol, and 3 mL H2O at 3.5 V, 12.8 mA, and c.d. 0.2 mA/cm2 gave 103 mg polymer as **naphthalenedisulfonate** salt with elec. cond. .apprx.8.4 S/cm.

IT 126213-51-2P

(manuf. of elec. conductive, by electrochem. polymn., solvents for)

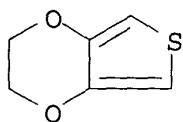
RN 126213-51-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

CMF C6 H6 O2 S



IC ICM C25B003-10

ICS C07D495-04; C08G075-00

ICI C07D495-04, C07D333-00, C07D325-00

CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 72

ST electrochem polymn alkylenedioxythiophene solvent glycol; thiophene alkylenedioxy polymn electrochem; ethylenedioxythiophene polymer manuf electropolymn; diethylene glycol solvent electropolymn; elec conductor alkylenedioxythiophene polymer; **naphthalenedisulfonate** alkylenedioxythiophene polymer

IT 126213-51-2P

(manuf. of elec. conductive, by electrochem. polymn., solvents for)

=> d his 165-

FILE 'REGISTRY' ENTERED AT 11:45:39 ON 17 JAN 2003

L65 1 S 126213-50-1  
L66 26 S 126213-50-1/CRN  
L67 660 S L5 NOT (L65 OR L66)

FILE 'HCA' ENTERED AT 11:46:47 ON 17 JAN 2003

L68 239 S L67  
L69 28 S L68 AND L18  
L70 26 S L69 NOT (L61 OR L62 OR L63 OR L64)

=> d l70 1-26 cbib abs hitstr hitind

L70 ANSWER 1 OF 26 HCA COPYRIGHT 2003 ACS

137:295662 Aqueous compositions containing 3,4-dialkoxythiophene polymers and nonnewtonian binders. Van den Bogaert, Roger (Agfa-Gevaert, Belg.). PCT Int. Appl. WO 2002079316 A2 20021010, 39 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-EP3062 20020319. PRIORITY: EP 2001-98 20010329; EP 2001-730 20011210.

AB The compn. contg. a polymer or copolymer of a 3,4-dialkoxythiophene in which two alkoxy groups are same or different or together represent an substituted oxy-alkylene-oxy bridge [e.g., poly(3,4-ethylenedioxythiophene)], a polyanion [e.g., poly(styrene **sulfonate**)] and a nonnewtonian binder [e.g., Carbopol ETD 2623 (acrylic acid polymer)]. The compns. are useful as antistatic and electroconductive coatings and printing inks or pastes to form conductive layers for electroluminescent devices. The method for prepg. a conductive layer comprising applying the above compn. to an optionally subbed support, a dielec. layer, a phosphor layer or an optionally transparent conductive coating; and drying the applied aq. compn.

IT 126213-52-3, Poly(3,4-Methylene dioxythiophene)  
150504-14-6, Poly[3,4-(propylenedioxy)thiophene]  
202927-42-2, Poly(3,4-butylenedioxythiophene)  
(aq. compns. contg. 3,4-dialkoxythiophene polymers and nonnewtonian binders)

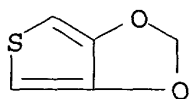
RN 126213-52-3 HCA

CN Thieno[3,4-d]-1,3-dioxole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 251-37-6

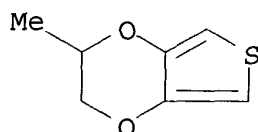
CMF C5 H4 O2 S



RN 150504-14-6 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

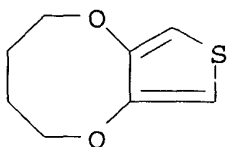
CRN 126235-11-8  
 CMF C7 H8 O2 S



RN 202927-42-2 HCA  
 CN Thieno[3,4-b][1,4]dioxocin, 2,3,4,5-tetrahydro-, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 202927-41-1  
 CMF C8 H10 O2 S



IC ICM C08L  
 CC 37-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 42, 73, 76  
 IT 50851-57-5, Poly(styrene **sulfonic** acid) 197923-07-2,  
 Carbopol ETD 2623  
 (aq. compns. contg. 3,4-dialkoxythiophene polymers and  
 nonnewtonian binders)  
 IT 126213-51-2, Poly(3,4-ethylenedioxythiophene) 126213-52-3,  
 Poly(3,4-Methylene dioxythiophene) 150504-14-6,  
 Poly[3,4-(propylenedioxy)thiophene] 202927-42-2,  
 Poly(3,4-butylenedioxythiophene)  
 (aq. compns. contg. 3,4-dialkoxythiophene polymers and

nonnewtonian binders)

L70 ANSWER 2 OF 26 HCA COPYRIGHT 2003 ACS

137:286206 Stable electroluminescent devices. Willaert, Peter; Cloots, Tom; Van den Bogaert, Roger (Agfa-Gevaert, Belg.). PCT Int. Appl. WO 2002080627 A2 20021010, 29 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-EP3063 20020319. PRIORITY: EP 2001-98 20010329; EP 2001-730 20011210.

AB Electroluminescent devices comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between the transparent or translucent first electrode and the second conductive electrode are described in which the first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which the two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge. Methods for fabricating the devices using pastes, solns., or dispersions of the electrode materials, and lamps and displays using them, are also described.

IT 126213-52-3, Poly(3,4-methylenedioxythiophene)  
126213-52-3D, Poly(3,4-methylenedioxythiophene), derivs.  
150504-14-6, Poly[3,4-(propylenedioxy)thiophene]  
150504-14-6D, Poly[3,4-(propylenedioxy)thiophene], derivs.  
202927-42-2, Poly(3,4-butylenedioxythiophene)  
202927-42-2D, Poly(3,4-butylenedioxythiophene), derivs.  
(electroluminescent devices with polymer-based electrodes and their fabrication and use)

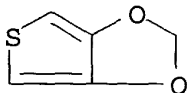
RN 126213-52-3 HCA

CN Thieno[3,4-d]-1,3-dioxole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 251-37-6

CMF C5 H4 O2 S



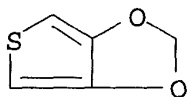
RN 126213-52-3 HCA

CN Thieno[3,4-d]-1,3-dioxole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 251-37-6

CMF C5 H4 O2 S



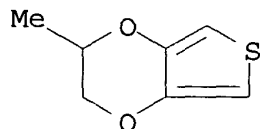
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



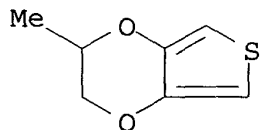
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



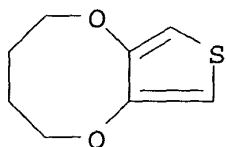
RN 202927-42-2 HCA

CN Thieno[3,4-b][1,4]dioxocin, 2,3,4,5-tetrahydro-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 202927-41-1

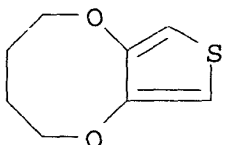
CMF C8 H10 O2 S



RN 202927-42-2 HCA  
 CN Thieno[3,4-b][1,4]dioxocin, 2,3,4,5-tetrahydro-, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 202927-41-1  
 CMF C8 H10 O2 S



IC ICM H05B033-26  
 ICS H05B033-28; H01B001-12; H01L051-20  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 38, 74, 76  
 IT 50851-57-5, Poly(styrene **sulfonic** acid)  
 (electroluminescent devices with polymer-based electrodes and their fabrication and use)  
 IT 126213-51-2, Poly(3,4-ethylenedioxythiophene) 126213-51-2D,  
 Poly(3,4-ethylenedioxythiophene), derivs. 126213-52-3,  
 Poly(3,4-methylenedioxythiophene) 126213-52-3D,  
 Poly(3,4-methylenedioxythiophene), derivs. 150504-14-6,  
 Poly[3,4-(propylenedioxy)thiophene] 150504-14-6D,  
 Poly[3,4-(propylenedioxy)thiophene], derivs. 202927-42-2,  
 Poly(3,4-butylenedioxythiophene) 202927-42-2D,  
 Poly(3,4-butylenedioxythiophene), derivs.  
 (electroluminescent devices with polymer-based electrodes and their fabrication and use)  
 L70 ANSWER 3 OF 26 HCA COPYRIGHT 2003 ACS  
 137:239828 Electrochemical pixel device. Armgarth, Marten; Kugler, Thomas; Berggren, Magnus; Remonen, Tommi; Nilsson, David; Andersson, Karl Peter (Acreo Ab, Swed.). PCT Int. Appl. WO 2002071139 A1 20020912, 57 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO; RW: AT, BE, BF, BJ, CF, CG, CH,

CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.  
APPLICATION: WO 2002-SE404 20020307. PRIORITY: SE 2001-747 20010307; SE 2001-748 20010307; US 2001-PV276105 20010316; US 2001-PV276218 20010316.

AB Pixel devices are described which comprise an electrochromic device controlled by an electrochem. transistor device comprising a source contact; a drain contact; .gtoreq.1 gate electrode; an org. electrochem. active element electrochem. active element which comprises a transistor channel arranged between and in direct elec. contact with the source and drain contacts; and a solidified electrolyte in direct elec. contact with the electrochem. active element and the gate electrode(s) and interposed between them in such a way that electron flow between the electrochem. active element and the gate electrode(s) is prevented so that the flow of electrons between source contact and drain contact is controllable by means of a voltage applied to the gate electrode(s). Control of the electrochromic device is achieved using one of the source and drain contacts of the electrochem. transistor device, which is in elec. contact with one of the electrodes of the electrochromic device. Matrixes of the electrochem. pixel devices, and pixelated displays incorporating the matrixes are also described, as are processes for the prodn. of the devices.

IT 126213-52-3, Poly(3,4-methylenedioxythiophene)  
126213-52-3D, Poly(3,4-methylenedi- oxythiophene), derivs.  
150504-14-6, Poly(3,4-propylenedioxythiophene)  
150504-14-6D, Poly(3,4-propylenedioxythiophene), derivs.  
202927-42-2 202927-42-2D, derivs.

(electrochromic pixels controlled by electrochem. transistors and their fabrication and matrixes incorporating them and displays employing the matrixes)

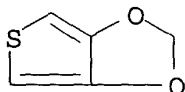
RN 126213-52-3 HCA

CN Thieno[3,4-d]-1,3-dioxole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 251-37-6

CMF C5 H4 O2 S



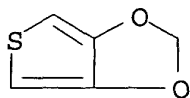
RN 126213-52-3 HCA

CN Thieno[3,4-d]-1,3-dioxole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 251-37-6

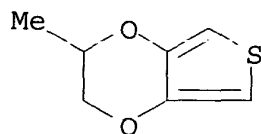
CMF C5 H4 O2 S



RN 150504-14-6 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

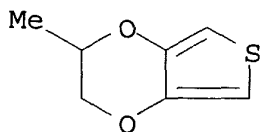
CRN 126235-11-8  
CMF C7 H8 O2 S



RN 150504-14-6 HCA  
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8  
CMF C7 H8 O2 S

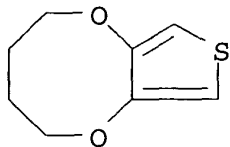


RN 202927-42-2 HCA  
CN Thieno[3,4-b][1,4]dioxocin, 2,3,4,5-tetrahydro-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 202927-41-1  
CMF C8 H10 O2 S

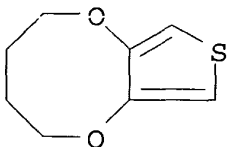




RN 202927-42-2 HCA  
 CN Thieno[3,4-b][1,4]dioxocin, 2,3,4,5-tetrahydro-, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 202927-41-1  
 CMF C8 H10 O2 S



IC G02F001-155; H01L051-20; H01L029-772; H01L021-335; G09F009-33  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 72, 73, 76  
 IT 9002-88-4, Polyethylene 9002-89-5, Poly(vinyl alcohol)  
 9003-01-4, Polyacrylic acid 9003-05-8 9003-07-0, Polypropylene  
 9003-39-8, Poly(vinylpyrrolidone) 9020-73-9, Polyethylene  
 naphthalene dicarboxylate 25038-59-9, Polyethylene terephthalate,  
 uses 25087-26-7, Polymethacrylic acid 25322-68-3D, derivs.  
 25322-69-4, Polypropylene oxide 126213-51-2D, Poly(3,4-  
 ethylenedioxythiophene), derivs. **126213-52-3**,  
 Poly(3,4-methylenedioxythiophene) **126213-52-3D**,  
 Poly(3,4-methylenedi- oxythiophene), derivs. **150504-14-6**,  
 Poly(3,4-propylenedioxythiophene) **150504-14-6D**,  
 Poly(3,4-propylenedioxythiophene), derivs. **202927-42-2**  
**202927-42-2D**, derivs.  
 (electrochromic pixels controlled by electrochem. transistors and  
 their fabrication and matrixes incorporating them and displays  
 employing the matrixes)  
 IT 126213-51-2, Poly(3,4-ethylene dioxythiophene)  
 (polystyrene **sulfonate**-doped; electrochromic pixels  
 controlled by electrochem. transistors and their fabrication and  
 matrixes incorporating them and displays employing the matrixes)  
 L70 ANSWER 4 OF 26 HCA COPYRIGHT 2003 ACS  
 137:141412 Enhanced Contrast Dual Polymer Electrochromic Devices.  
 Schwendeman, Irina; Hickman, Roberta; Soenmez, Guersel; Schottland,  
 Philippe; Zong, Kyukwan; Welsh, Dean M.; Reynolds, John R.

(Department of Chemistry, Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611, USA). Chemistry of Materials, 14(7), 3118-3122 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB The ability to match two complementary polymers constitutes an important step forward in the design of electrochromic devices (ECDs). Here we show that the necessary control over the color, brightness, and environmental stability of an electrochromic window can be achieved through the careful design of anodically coloring polymers. For this purpose, we have constructed ECDs based on di-Me substituted poly(3,4-propylenedioxythiophene) (PProDOT-Me2) as a cathodically coloring layer, along with poly[3,6-bis(2-ethylenedioxythienyl)-N-methyl-carbazole] (PBEDOT-NMeCz) and N-propane **sulfonated** poly(3,4-propylenedioxyrrole) (PProDOP-NPrS) as anodically coloring polymers. Comparison of the results shows that using PProDOP-NPrS as the high band gap polymer has several advantages over the carbazole counterpart. The main benefit is the opening of the transmissivity window throughout the entire visible spectrum by moving the .pi.-.pi.\* transition of the neutral anodically coloring material into the UV region. Another advantage of the PProDOP-NPrS based device is the noticeable increase in the optical contrast as evidenced by an increase in the transmittance change of the device (.DELTA.%T) from 56% to 68%, as measured at 580 nm. These devices exhibit a 60% change in luminance along with half-second switching times for full color change. Moreover, they were found to retain up to 86% of their optical response after 20 000 double potential steps, opening up new directions in optical technol.

IT **150504-14-6D**, Poly(3,4-propylenedioxythiophene), di-Me substituted **177215-61-1**  
(enhanced contrast dual polymer electrochromic devices fabricated with)

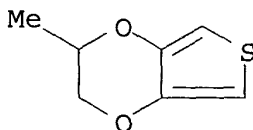
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



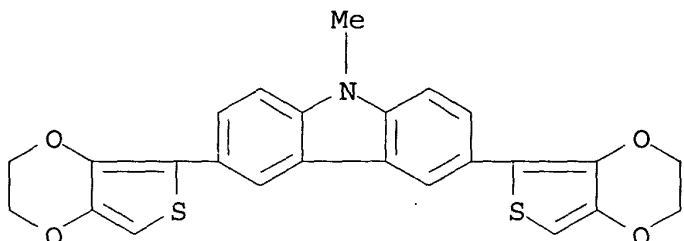
RN 177215-61-1 HCA

CN 9H-Carbazole, 3,6-bis(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-9-methyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 177215-53-1

CMF C25 H19 N O4 S2



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 72, 73

ST polypropylenedioxythiophene cathodically coloring layer electrochromic device; polypropylenedioxythiophene **sulfonated** anodically coloring layer electrochromic device; PBEDOT methyl carbazole anodically coloring layer electrochromic device

IT **150504-14-6D**, Poly(3,4-propylenedioxythiophene), di-Me substituted **177215-61-1** 259737-87-6D, Poly(3,4-propylenedioxythiophene), N-**propanesulfonated** (enhanced contrast dual polymer electrochromic devices fabricated with)

L70 ANSWER 5 OF 26 HCA COPYRIGHT 2003 ACS

137:141033 PEDOT polyelectrolyte based electrochromic films via electrostatic adsorption. Cutler, Charlotte A.; Bouguettaya, Mohamed; Reynolds, John R. (Department of Chemistry, Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611, USA). Advanced Materials (Weinheim, Germany), 14(9), 684-688 (English) 2002. CODEN: ADVMEW. ISSN: 0935-9648. Publisher: Wiley-VCH Verlag GmbH.

AB Multilayer films of electrostatically adsorbed (ESA) poly(4-(2,3-dihydrothieno-[3,4b]-[1,4]dioxin-2-yl-methoxy)-1-**butanesulfonic** acid, sodium salt) (PEDOT-S) and poly(allylamine hydrochloride) (PAH), display highly reversible, fast switching redox processes in aq. media, which results in a distinctive color change within the multilayer film. The ESA films of sequentially deposited bilayers (BL) of PEDOT-S and PAH were fabricated by submerging ITO-coated glass alternately into polyelectrolyte solns., first PAH (10 mM) and then PEDOT-S (2 mM) in aq. Na2SO4 (0.2 M). The PEDOT-S/PAH redox reaction cyclic voltammogram as a function of film thickness revealed that the electroactivity of PEDOT-S was retained and the films exhibit a reversible redox response despite the insulating nature of PAH. The PEDOT-S/PAH film switched from light blue in the oxidized form to pink/purple and opaque in the reduced form. The films are of interest for use in electrochromic devices.

IT **204444-03-1**

(layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

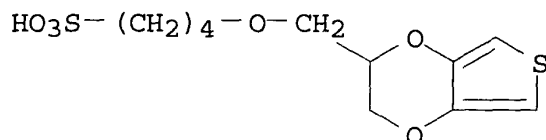
RN 204444-03-1 HCA

CN 1-Butanesulfonic acid, 4-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-, sodium salt, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204444-01-9

CMF C11 H16 O6 S2 . Na



● Na

CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 73, 76

ST polythiophene dioxin **methoxysulfonate** electrostatic adsorption polyallylamine hydrochloride; multilayer electrochromic film polyethylenedioxythiophene **sulfonate** redox response; switching chromism polythiophene polyallylamine hydrochloride polyelectrolyte multilayer

IT Polyelectrolytes  
(anionic; layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT Polyelectrolytes  
(cationic; layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT Redox reaction  
(electrochem.; layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT Adsorption  
(electrostatic; layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT Electric switching

Electrochromic materials

Optical switching

Redox potential

(layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT Films

(multilayer; layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT Conducting polymers

(polythiophenes; layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

IT 71550-12-4, Poly(allylamine hydrochloride) 204444-03-1

(layer-by-layer adsorption and reversible redox electrochem. and electrochromism of poly(ethylenedioxythiophene **butylenesulfonate**)/poly(allylamine hydrochloride) polyelectrolyte multilayers)

L70 ANSWER 6 OF 26 HCA COPYRIGHT 2003 ACS

136:386825 Electrostatic adsorption of PEDOT based electrochromic films.

Cutler, Charlotte A.; Bouguettays, Mohamed; Reynolds, J. R. (Department of Chemistry, University of Florida, Gainesville, FL, 32611, USA). Polymeric Materials Science and Engineering, 86, 256-257 (English) 2002. CODEN: PMSE DG. ISSN: 0743-0515. Publisher: American Chemical Society.

AB The multilayer electrostatic adsorption of fully water sol. **sulfonate**-contg. poly(4-(2,3-dihydrothieno[3,4-b][1,4]dioxin-2-ylmethoxy)-1-**butanesulfonic** acid, sodium salt) PEDOT-S (polyanion) and poly(allylamine hydrochloride) PAH (polycation) onto unmodified ITO coated glass was studied. PEDOT-S/PAH ESA multilayer films display highly reversible, fast switching redox processes in aq. media, which results in a distinctive color change within the multilayer film. These preliminary results suggest that PEDOT-S contg. multilayer ESA films may be highly applicable in the field of electrochromic devices.

IT 204444-03-1

(electrostatic adsorption of **sulfonate**-contg. poly(dioxythiophene) deriv.-poly(allylamine hydrochloride) multilayer electrochromic film onto ITO-coated glass)

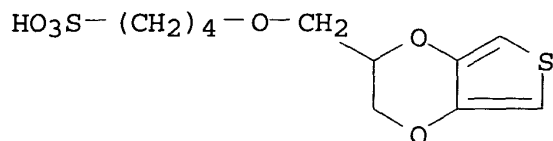
RN 204444-03-1 HCA

CN 1-Butanesulfonic acid, 4-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-, sodium salt, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204444-01-9

CMF C11 H16 O6 S2 . Na



● Na

- CC 37-5 (Plastics Manufacture and Processing)  
Section cross-reference(s): 38, 73
- ST electrostatic adsorption **sulfonate** polydioxethiophene  
electrochromic film
- IT Adsorption  
Electrochromic materials  
Polyelectrolytes  
(electrostatic adsorption of **sulfonate**-contg.  
poly(dioxethiophene) deriv.-poly(allylamine hydrochloride)  
multilayer electrochromic film onto ITO-coated glass)
- IT Glass, miscellaneous  
(electrostatic adsorption of **sulfonate**-contg.  
poly(dioxethiophene) deriv.-poly(allylamine hydrochloride)  
multilayer electrochromic film onto ITO-coated glass)
- IT 50926-11-9, ITO  
(electrostatic adsorption of **sulfonate**-contg.  
poly(dioxethiophene) deriv.-poly(allylamine hydrochloride)  
multilayer electrochromic film onto ITO-coated glass)
- IT 71550-12-4, Poly(allylamine hydrochloride) **204444-03-1**  
(electrostatic adsorption of **sulfonate**-contg.  
poly(dioxethiophene) deriv.-poly(allylamine hydrochloride)  
multilayer electrochromic film onto ITO-coated glass)
- L70 ANSWER 7 OF 26 HCA COPYRIGHT 2003 ACS  
136:386768 **Sulfonatoalkoxy** derivatized PEDOT via chemical  
polymerization. Valle, Matthieu; Bouguettaya, Mohamed; Cutler,  
Charlotte A.; Reynolds, John R. (Dep. Chem., Center Macromolecular  
Sci. Eng., Univ. Florida, Gainesville, FL, 32611, USA). Polymeric  
Materials Science and Engineering, 86, 187-188 (English) 2002.  
CODEN: PMSEDG. ISSN: 0743-0515. Publisher: American Chemical  
Society.
- AB Oxidative polymn. and electrpolyamn. of 4-(2,3-dihydrothieno  
[3,4-b][1,4]dioxin-2-ylmethoxy)-1-**butanesulfonic** acid  
sodium salt (EDOT-S) in the prepn. of PEDOT-S polyelectrolyte were  
described. Incorporation of PEDOT-S and poly(allylamine  
hydrochloride) by electrostatic deposition technique into multilayer  
films gave high contrast electrochromics.
- IT **204444-03-1P**  
(prepn. of **sulfonatoalkoxy** derivatized PEDOT via chem.  
polymn. and electrochromic multilayer film with poly(allylamine

hydrochloride))

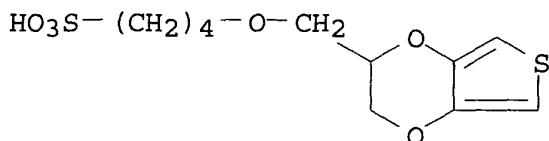
RN 204444-03-1 HCA

CN 1-Butanesulfonic acid, 4-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-, sodium salt, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204444-01-9

CMF C11 H16 O6 S2 . Na



● Na

CC 37-3 (Plastics Manufacture and Processing)

ST **sulfonate** polyethylenedioxythiophene deriv prepn  
polyelectrolyte; electrochromic polyallylamine hydrochloride  
**sulfonate** polyethylenedioxythiophene multilayerIT Polymerization  
(electrochem.; prepn. of **sulfonatoalkoxy** derivatized  
PEDOT via chem. polymn. and electrochromic multilayer film with  
poly(allylamine hydrochloride))IT Polymerization  
(oxidative; prepn. of **sulfonatoalkoxy** derivatized PEDOT  
via chem. polymn. and electrochromic multilayer film with  
poly(allylamine hydrochloride))IT Electrochromic materials  
MultilayersPolyelectrolytes  
(prepn. of **sulfonatoalkoxy** derivatized PEDOT via chem.  
polymn. and electrochromic multilayer film with poly(allylamine  
hydrochloride))IT **204444-03-1P**  
(prepn. of **sulfonatoalkoxy** derivatized PEDOT via chem.  
polymn. and electrochromic multilayer film with poly(allylamine  
hydrochloride))IT 71550-12-4, Poly(allylamine hydrochloride)  
(prepn. of **sulfonatoalkoxy** derivatized PEDOT via chem.  
polymn. and electrochromic multilayer film with poly(allylamine  
hydrochloride))

L70 ANSWER 8 OF 26 HCA COPYRIGHT 2003 ACS

136:279781 Electrochemical, conductive, and magnetic properties of  
2,7-carbazole-based conjugated polymers. Zotti, Gianni; Schiavon,  
Gilberto; Zecchin, Sandro; Morin, Jean-Francois; Leclerc, Mario

(Istituto di Polarografia ed Elettrochimica Preparativa, Consiglio Nazionale delle Ricerche, Padua, 35020, Italy). *Macromolecules*, 35(6), 2122-2128 (English) 2002. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Novel poly(2,7-carbazole)s (i.e., poly(N-octyl-2,7-carbazole-diyl) and poly(N-(4-hexyl-benzoyl)-2,7-carbazole-diyl)) and their alternating thiophene, bi-thiophene, and 3,4-ethylenedioxy-2,5-thienylene copolymers have been investigated by cyclic voltammetry, UV-vis spectroelectrochem., electrochem. quartz crystal microbalance, in-situ ESR, and in-situ cond. techniques. All polymer films undergo reversible oxidn. and partially reversible redn. processes. In poly(N-octyl-2,7-carbazole-diyl), two isoelectronic oxidn. processes produce radical cations and dication with charge localization at the carbazole subunits. The presence of a strong electron-withdrawing substituent onto the nitrogen atom in the homopolymer leads to an increase by 3 orders of magnitude of the cond. (i.e., 1 .times. 10<sup>-2</sup> S/cm). Similarly, in alternating copolymers, the oxidative charge is more delocalized over the polyconjugated backbone with in-situ conductivities in the range of 4 .times. 10<sup>-2</sup>-4 .times. 10<sup>-3</sup> S/cm.

IT 406726-97-4P 406726-98-5P

(2,7-carbazole-based conjugated polymers)

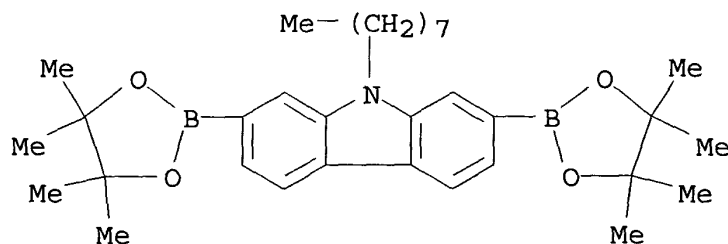
RN 406726-97-4 HCA

CN 9H-Carbazole, 9-octyl-2,7-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-, polymer with 5,7-dibromo-2,3-dihydrothieno[3,4-b]-1,4-dioxin (9CI) (CA INDEX NAME)

CM 1

CRN 406726-92-9

CMF C32 H47 B2 N O4

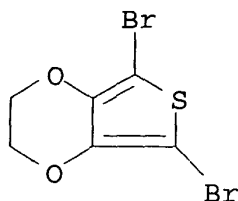


CM 2

CRN 174508-31-7

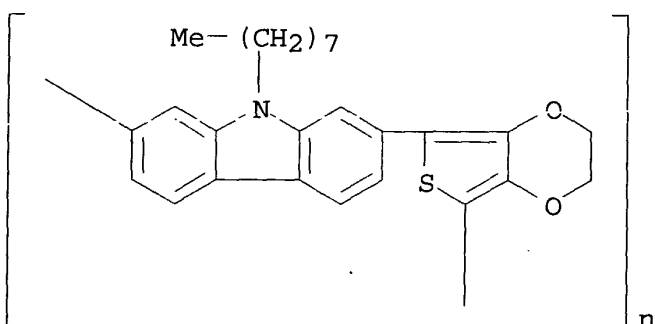
CMF C6 H4 Br2 O2 S





RN 406726-98-5 HCA

CN Poly[(9-octyl-9H-carbazole-2,7-diyl)thieno[3,4-b]-1,4-dioxin-5,7-diyl] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 72, 76

IT 406726-95-2P 406726-96-3P **406726-97-4P**  
**406726-98-5P** 406726-99-6P 406727-00-2P 406727-01-3P  
 406727-02-4P

(2,7-carbazole-based conjugated polymers)

IT 111-83-1, 1-Bromooctane 358-23-6, **Trifluoromethanesulfonic**  
 anhydride 5344-78-5, 4-Bromo-3-nitroanisole 5720-07-0,  
 4-Methoxyphenylboronic acid 25015-63-8, Pinacolborane  
 115297-58-0

(2,7-carbazole-based conjugated polymers)

L70 ANSWER 9 OF 26 HCA COPYRIGHT 2003 ACS

136:248043 Bis(3,4-ethylenedioxythienyl)naphthalene-based monomers and polymers. Tan, Loon-Seng; Sankaran, Balasubramanian (The United States of America as Represented by the Secretary of the Air Force, USA). U.S. US 6359149 B1 20020319, 6 pp., Cont.-in-part of U.S. 6,291,621. (English). CODEN: USXXAM. APPLICATION: US 2000-497034 20000202. PRIORITY: US 1999-255689 19990223.

AB Provided are electropolymerizable monomers of bis(3,4-ethylenedioxythienyl)naphthalene. Also provided are polymers resulting from the electropolymerization of these monomers. Thus, 23.28 g chilled **trifluoromethanesulfonic** acid anhydride was added dropwise over 15 min to 6.00 g 1,5-naphthalenediol in 60 mL pyridine at 0.degree., the mixt. was agitated at 0.degree. for 5 h to give

1,5-bis(trifluoromethanesulfonate)naphthalene.

3,4-Ethylenedioxythiophene (25 g) in 100 mL Et ether was cooled to -78.degree., 77 mL 2.5 M n-butyllithium was added dropwise, 85.9 g tri-n-butyltin chloride was added to give 2-(tributylstannyl)-3,4-ethylenedioxythiophene. 1,5-Bis(trifluoromethanesulfonate)naphthalene 2, 2-(tributylstannyl)-3,4-ethylenedioxythiophene 4.47, and lithium chloride 0.5 g in 100 mL 1,4-dioxane were refluxed in the presence of 55 mg Pd(PPh<sub>3</sub>)<sub>4</sub> for 18 h to give 1,5-bis(2-(3,4-ethylenedioxythienyl))naphthalene.

1,5-Bis(2-(3,4-ethylenedioxythienyl))naphthalene was electropolymd.

IT 225220-37-1P 225220-38-2P 225220-39-3P

225220-40-6P 225220-41-7P

(bis(3,4-ethylenedioxythienyl)naphthalene-based monomers and polymers)

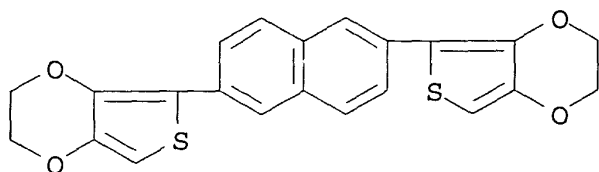
RN 225220-37-1 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(2,6-naphthalenediyl)bis[2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-32-6

CMF C22 H16 O4 S2



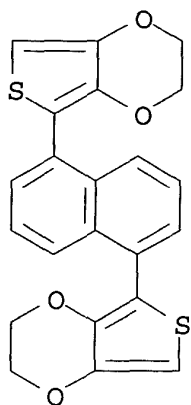
RN 225220-38-2 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,5-naphthalenediyl)bis[2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225220-33-7

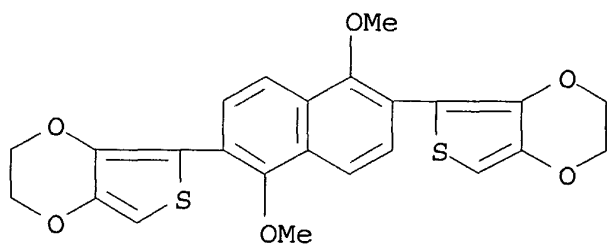
CMF C22 H16 O4 S2



RN 225220-39-3 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(1,5-dimethoxy-2,6-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

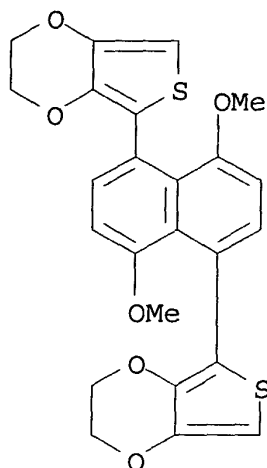
CRN 225220-34-8  
 CMF C24 H20 O6 S2



RN 225220-40-6 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(4,8-dimethoxy-1,5-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

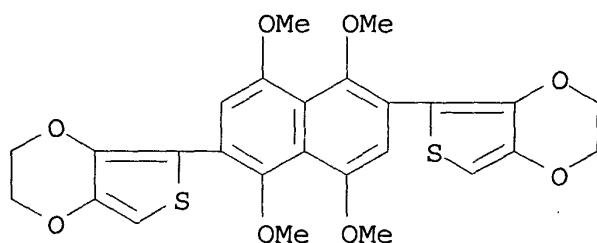
CRN 225220-35-9  
 CMF C24 H20 O6 S2



RN 225220-41-7 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2,2'-(1,4,5,8-tetramethoxy-2,6-naphthalenediyl)bis-, homopolymer (9CI) (CA INDEX NAME)

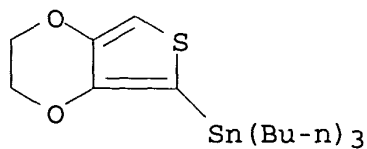
CM 1

CRN 225220-36-0  
 CMF C26 H24 O8 S2

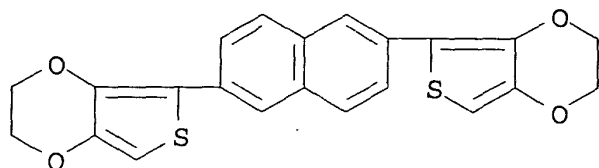


IT 175922-79-9, 2-(Tributylstannyl)-3,4-ethylenedioxythiophene  
 (bis(3,4-ethylenedioxythienyl)naphthalene-based monomers and  
 polymers)

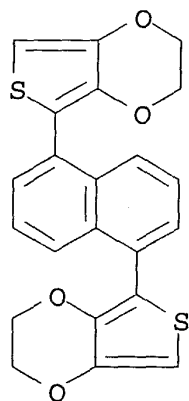
RN 175922-79-9 HCA  
 CN Stannane, tributyl(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)- (9CI)  
 (CA INDEX NAME)



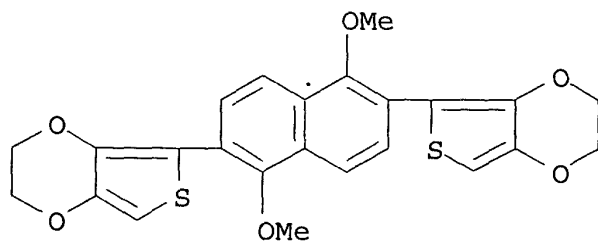
IT 225220-32-6P 225220-33-7P 225220-34-8P  
 225220-35-9P 225220-36-0P  
 (monomer; bis(3,4-ethylenedioxythienyl)naphthalene-based monomers  
 and polymers)  
 RN 225220-32-6 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(2,6-naphthalenediyl)bis[2,3-dihydro-  
 (9CI) (CA INDEX NAME)



RN 225220-33-7 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,5-naphthalenediyl)bis[2,3-dihydro-  
 (9CI) (CA INDEX NAME)

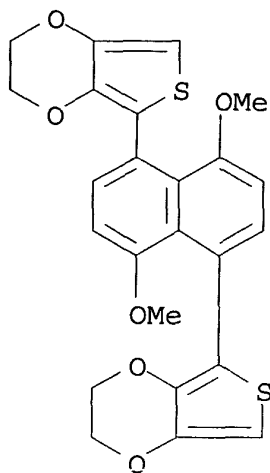


RN 225220-34-8 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,5-dimethoxy-2,6-  
 naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)

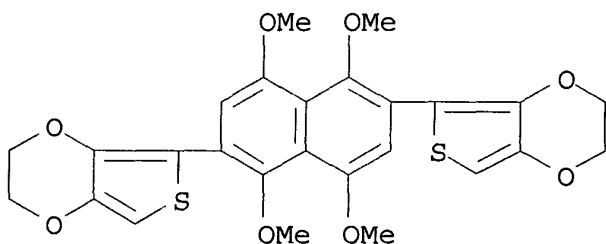


RN 225220-35-9 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(4,8-dimethoxy-1,5-

naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)



RN 225220-36-0 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 5,5'-(1,4,5,8-tetramethoxy-2,6-naphthalenediyl)bis[2,3-dihydro- (9CI) (CA INDEX NAME)



IC ICM C07D495-02  
 NCL 549050000  
 CC 35-2 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 72  
 IT 225220-37-1P 225220-38-2P 225220-39-3P  
 225220-40-6P 225220-41-7P  
 (bis(3,4-ethylenedioxythienyl)naphthalene-based monomers and polymers)  
 IT 152873-79-5P, 1,5-Bis(trifluoromethanesulfonate  
 )naphthalene 152873-82-0P, 2,6-Bis(trifluoromethanesulfonate\*  
 \*\* )naphthalene  
 (bis(3,4-ethylenedioxythienyl)naphthalene-based monomers and polymers)  
 IT 83-56-7, 1,5-Naphthalenediol 358-23-6,  
 \*\*\*Trifluoromethanesulfonic acid anhydride 581-43-1,  
 2,6-Naphthalenediol 1461-22-9 88818-38-6, 1,5-Dimethoxy-4,8-  
 dibromonaphthalene 91394-96-6, 1,5-Dimethoxy-2,6-  
 dibromonaphthalene 123707-36-8, 1,4,5,8-Tetramethoxy-2,6-

dibromonaphthalene 126213-50-1, 3,4-Ethylenedioxythiophene  
 175922-79-9, 2-(Tributylstannyl)-3,4-ethylenedioxythiophene  
 (bis(3,4-ethylenedioxythienyl)naphthalene-based monomers and  
 polymers)

IT 225220-32-6P 225220-33-7P 225220-34-8P

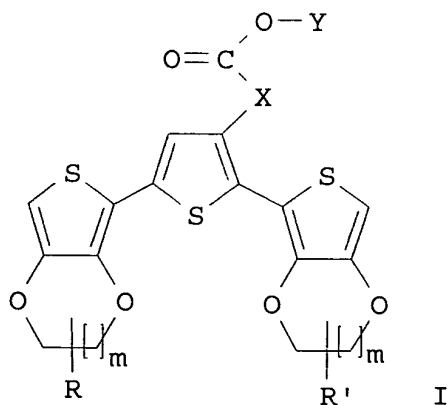
225220-35-9P 225220-36-0P

(monomer; bis(3,4-ethylenedioxythienyl)naphthalene-based monomers  
 and polymers)

L70 ANSWER 10 OF 26 HCA COPYRIGHT 2003 ACS

136:6572 Manufacture of active ester-functionalized .pi.-conjugated  
 polymers based on 3,4-alkylenedioxythiophenes. Groenendaal,  
 Lambertus; Reuter, Knud; Baeuerle, Peter; Meyer, Alexander (Bayer  
 Aktiengesellschaft, Germany). PCT Int. Appl. WO 2001090212 A1  
 20011129, 30 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ,  
 BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ,  
 EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
 MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
 TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI,  
 FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG,  
 TR. (German). CODEN: PIXXD2. APPLICATION: WO 2001-EP5362  
 20010510. PRIORITY: DE 2000-10025309 20000523.

GI



AB The title polymers can be prepd. by electrochem. polymn. of  
 terthiophene monomers [I; R, R' = H, C1-8 alkyl, C1-8 alkoxy, C1-18  
**alkylsulfonate**, C1-18 **alkoxysulfonate**; X =  
 (CH<sub>2</sub>)<sub>p+q</sub>, (CH<sub>2</sub>)<sub>p</sub>O(CH<sub>2</sub>)<sub>q</sub>; Y = alkyl-, aryl-, alkylaryl-substituted or  
 benzo-fused pyrrol(id)inedione; m = 0-5; p, q = 0-10]. The polymers  
 can be modified using the active ester function in order to change  
 their elec. and optical properties. Thus, bromination of

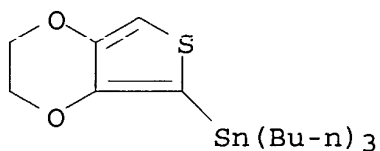
6-(3-thienyl)hexanoic acid with N-bromosuccinimide gave 88% 2,5-dibromo-6-(3-thienyl)hexanoic acid which was esterified (76%) with N-hydroxysuccinimide and the (dibromothienyl)hexanoate ester was coupled with 2-(tributylstannyl)-3,4-ethylenedioxythiophene (prepn. in 69% yield from lithiated 3,4-ethylenedioxythiophene and tributyltin chloride given) in the presence of Pd(PPh<sub>3</sub>)<sub>4</sub> and CuO to give 55% monomer I [R, R' = H, X = (CH<sub>2</sub>)<sub>5</sub>, Y = 2,5-dioxopyrrolidino, m = 1].

IT 175922-79-9P

(manuf. and coupling with dibromothiophene deriv.; manuf. of active ester-functionalized .pi.-conjugated polymers based on alkylenedioxythiophenes)

RN 175922-79-9 HCA

CN Stannane, tributyl(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)- (9CI)  
(CA INDEX NAME)

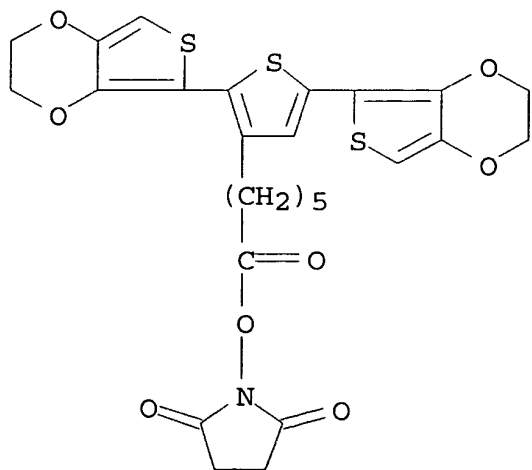


IT 350504-00-6P

(monomer; manuf. of active ester-functionalized .pi.-conjugated polymers based on alkylenedioxythiophenes)

RN 350504-00-6 HCA

CN 2,5-Pyrrolidinedione, 1-[[6-[2,5-bis(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-3-thienyl]-1-oxohexyl]oxy]- (9CI) (CA INDEX NAME)



IC ICM C08G061-12

CC 35-7 (Chemistry of Synthetic High Polymers)

IT 175922-79-9P

(manuf. and coupling with dibromothiophene deriv.; manuf. of



active ester-functionalized .pi.-conjugated polymers based on  
alkylenedioxythiophenes)

IT 350504-00-6P

(monomer; manuf. of active ester-functionalized .pi.-conjugated  
polymers based on alkylenedioxythiophenes)

L70 ANSWER 11 OF 26 HCA COPYRIGHT 2003 ACS

136:6373 3,4-Alkylenedioxyppyroles: Functionalized Derivatives as  
Monomers for New Electron-Rich Conducting and Electroactive  
Polymers. Zong, Kyukwan; Reynolds, John R. (Department of Chemistry  
Center for Macromolecular Science and Engineering, University of  
Florida, Gainesville, FL, 32611-7200, USA). Journal of Organic  
Chemistry, 66(21), 6873-6882 (English) 2001. CODEN: JOCEAH. ISSN:  
0022-3263. Publisher: American Chemical Society.

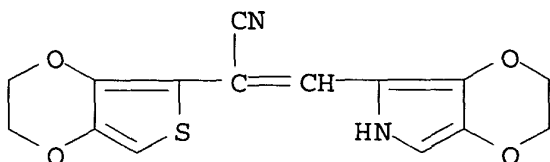
AB New functionalized derivs. of 3,4-ethylenedioxyppyrole (EDOP, 5a)  
and 3,4-(1,3-propylenedioxy)pyrrole (ProDOP, 5b) as esp.  
electron-rich monomers which yield highly electroactive and stable  
conducting polymers useful for a diverse set of applications have  
been synthesized. N-Alkylations of ProDOP were carried out to yield  
a variety of ProDOP derivs. having alkyl, **sulfonatoalkoxy**,  
glyme, and glyme alc. pendant chains. Iodination of EDOP and ProDOP  
via iodo-decarboxylation afforded iodo-functionalized derivs. useful  
for subsequent aryl coupling chem. N-Protection and formylation of  
EDOP, followed by Knoevenagel condensation of the resultant  
2-formyl-EDOP with aryl acetonitrile derivs., led to  
1-cyano-2-(2-(3,4-ethylenedioxyppyrryl))-1-(2-thienyl)vinylene (23)  
(Th-CNV-EDOP) and 1-cyano-2-(2-(3,4-ethylenedioxyppyrryl))-1-(2-(3,4-  
ethylenedioxythienyl)vinylene) (26) (EDOT-CNV-EDOP). A  
14-crown-4-ether 34 based dioxypyrrrole was synthesized with a cavity  
potentially useful for lithium ion coordination and sensing in the  
resultant electroactive polymer. C-Alkylated ProDOPs (43a, 43b, and  
43c) contg. octyl, ethylhexyl, and dioctyl substituents appended to  
the central methylene of the propylene bridge, were prepd. as  
monomers for potentially sol. .pi.-conjugated polymers.

IT 376395-21-0P

(functionalized derivs. as monomers for electron-rich conducting  
and electroactive polymers)

RN 376395-21-0 HCA

CN Thieno[3,4-b]-1,4-dioxin-5-acetonitrile, .alpha.-[(2,3-dihydro-6H-  
1,4-dioxino[2,3-c]pyrrol-5-yl)methylene]-2,3-dihydro- (9CI) (CA  
INDEX NAME)



CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 76

IT 76779-59-4P 150523-76-5P 376395-04-9P 376395-05-0P  
 376395-06-1P 376395-07-2P 376395-08-3P 376395-10-7P  
 376395-12-9P 376395-15-2P 376395-17-4P 376395-20-9P  
**376395-21-0P** 376395-25-4P 376395-42-5P 376395-43-6P  
 376395-44-7P

(functionalized derivs. as monomers for electron-rich conducting and electroactive polymers)

L70 ANSWER 12 OF 26 HCA COPYRIGHT 2003 ACS

135:123203 Dioxypyrrole- and dioxothiophene-based conducting polymers: properties and applications. Giurgiu, I.; Zong, K.; Reynolds, J. R.; Lee, W.-P.; Breneman, K. R.; Saprigin, A. V.; Epstein, A. J.; Hwang, J.; Tanner, D. B. (Department of Chemistry, University of Florida, Gainesville, FL, USA). Synthetic Metals, 119(1-3), 405-406 (English) 2001. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB The results of the temp. dependence of the dc and microwave cond., as well as magnetic susceptibility and reflectance data, are presented for electrochem. synthesized, free standing, poly(3,4-alkylenedioxothiophene) and poly(3,4-alkylenedioxypyrrole) films doped with different org. anions. The polymers have properties that are characteristic of disordered materials near the insulator-metal transition (IMT).

IT **150504-14-6**  
 (anion-doped dioxypyrrole- and dioxothiophene-based conducting polymer films: cond. properties and applications)

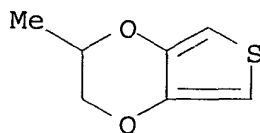
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



CC 37-5 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 73, 76

IT 16919-18-9, Hexafluorophosphate 37181-39-8,  
**Trifluoromethanesulfonate** 98837-98-0

(anion-doped dioxypyrrole- and dioxothiophene-based conducting polymer films: cond. properties and applications)

IT **150504-14-6** 259737-85-4, Poly(3,4-ethylenedioxypyrrole)  
 (anion-doped dioxypyrrole- and dioxothiophene-based conducting polymer films: cond. properties and applications)

L70 ANSWER 13 OF 26 HCA COPYRIGHT 2003 ACS

134:95497 Phosphodiesterase-inhibiting pyrazolopyrimidinone derivatives conjugated to thiophene moieties or benzo [fused] 5-membered heterocycles for treatment of erectile dysfunction and other cardiovascular disorders. Abdel-Jalil, Raid; Al-Abed, Yousef; El-Abadelah, Mustafa M.; Khanfar, Monther; Sabri, Salim S.; Voelter, Wolfgang (The Picower Institute for Medical Research, USA). PCT Int. Appl. WO 2001003644 A2 20010118, 37 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US18751 20000707. PRIORITY: US 1999-PV143099 19990709; US 1999-PV149389 19990817.

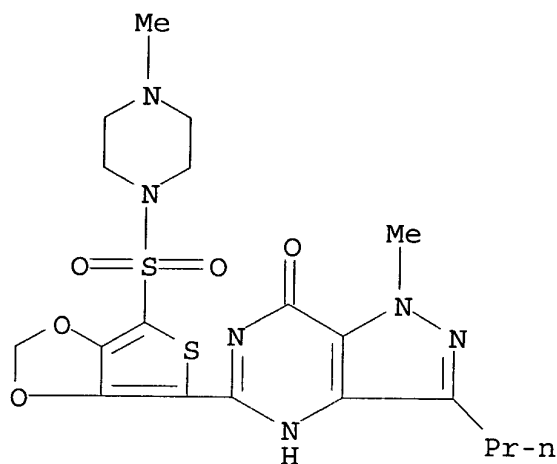
AB The invention discloses a genus of substituted pyrazolopyrimidinones characterized, in part, by multiply substituted thiophene moieties and, in part, a genus of substituted bicyclic heteroaryl appendages. The compds. are potent inhibitors of phosphodiesterases, particularly cyclic guanosine 3',5'-monophosphate phosphodiesterase activity and are useful for a variety of cardiovascular disorders relating to vascular patency, such as erectile dysfunction. Specifically, a selected set of [benzo]-fused heterocycles includes benzofuran, benzoazole, benzo[d]isoxazole, their 2,3-dihydro analogs, and benzo-1,3-dioxole moieties.

IT 319455-60-2 319455-63-5

(phosphodiesterase-inhibiting pyrazolopyrimidinone derivs. conjugated to thiophene moieties or benzo [fused] 5-membered heterocycles for treatment of erectile dysfunction and other cardiovascular disorders)

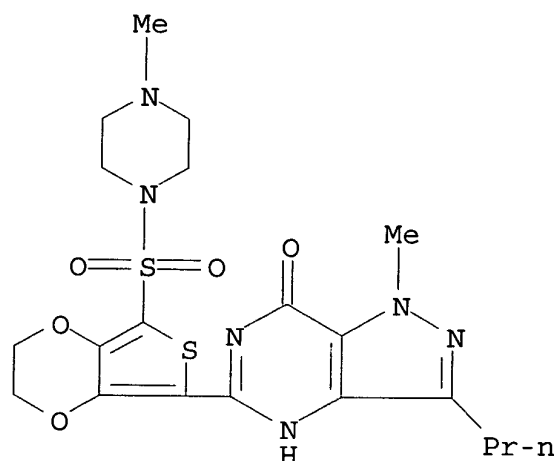
RN 319455-60-2 HCA

CN Piperazine, 1-[[6-(4,7-dihydro-1-methyl-7-oxo-3-propyl-1H-pyrazolo[4,3-d]pyrimidin-5-yl)thieno[3,4-d]-1,3-dioxol-4-yl)sulfonyl]-4-methyl- (9CI) (CA INDEX NAME)



RN 319455-63-5 HCA

CN Piperazine, 1-[[7-(4,7-dihydro-1-methyl-7-oxo-3-propyl-1H-pyrazolo[4,3-d]pyrimidin-5-yl)-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]sulfonyl]-4-methyl- (9CI) (CA INDEX NAME)



IC ICM A61K

CC 1-8 (Pharmacology)

Section cross-reference(s): 28, 63

IT 319455-54-4 319455-56-6 319455-57-7 319455-58-8 319455-59-9  
**319455-60-2** 319455-61-3 319455-62-4 **319455-63-5**  
 319455-64-6 319455-65-7 319455-66-8 319455-67-9 319455-68-0  
 319455-69-1 319455-70-4 319455-71-5 319455-72-6 319455-73-7  
 319455-74-8 319455-75-9 319455-76-0 319455-77-1 319455-78-2  
 319455-79-3 319455-80-6 319455-81-7 319455-82-8 319455-83-9

(phosphodiesterase-inhibiting pyrazolopyrimidinone derivs.  
 conjugated to thiophene moieties or benzo [fused] 5-membered  
 heterocycles for treatment of erectile dysfunction and other

cardiovascular disorders)  
 IT 109-01-3, 1-Methylpiperazine 7790-94-5, **Chlorosulfonic**  
 acid 123266-63-7 139756-02-8 139926-23-1  
 (reaction; phosphodiesterase-inhibiting pyrazolopyrimidinone  
 derivs. conjugated to thiophene moieties or benzo [fused]  
 5-membered heterocycles for treatment of erectile dysfunction and  
 other cardiovascular disorders)

L70 ANSWER 14 OF 26 HCA COPYRIGHT 2003 ACS

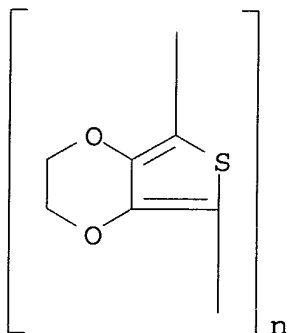
132:173442 Heat-mode recording element with two antistatic layers.  
 Quintens, Dirk (Agfa-Gevaert N.V., Belg.). Eur. Pat. Appl. EP  
 982718 A1 20000301, 14 pp. DESIGNATED STATES: R: AT, BE, CH, DE,  
 DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI,  
 RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-202898  
 19980828.

AB A heat-mode recording element comprises, on a substrate, a thin  
 metal recording layer, and two outmost antistatic layers one on each  
 side of the substrate.

IT **163359-60-2**  
 (heat-mode recording materials with two antistatic layers contg.)

RN 163359-60-2 HCA

CN Poly(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl) (9CI) (CA INDEX  
 NAME)



IC ICM G11B007-24

ICS B41M005-24

CC 74-7 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)

IT 1332-29-2, Tin oxide 11099-11-9, Vanadium oxide 50851-57-5,  
 Poly(**styrenesulfonic** acid) 50926-11-9, Indium tin oxide  
**163359-60-2**

(heat-mode recording materials with two antistatic layers contg.)

L70 ANSWER 15 OF 26 HCA COPYRIGHT 2003 ACS

132:166872 Poly(3,4-alkylenedioxythiophene) films: Electrical and  
 optical properties. Giurgiu, Irina; Reynolds, John R.; Lee, WonPil;  
 Brenneman, Keith R.; Epstein, Arthur J.; John, Dorothy; Hwang,  
 Jungseek; Tanner, David B. (Department of Chemistry, Center for  
 Macromolecular Science and Engineering, University of Florida,

Gainesville, FL, 32611, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 40(2), 622-623 (English) 1999. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.

AB Measurement of the room-temp. conductivities and the ratios between the cond. at 10k and 300 K for poly(3,4-ethylenedioxythiophene) (I) and poly(3,4-propylenedioxythiophene) (II) oxidatively doped with PF6-, CF3SO3-, and (CF3SO2)2N- showed that PF6--doped II and (CF3SO2)2N--doped I act as nonmetallic conductors, while CF3SO3--doped I shows crit. behavior and PF6--doped I behaves as a metal. The differences in their behaviors i likely; due to differences in disorder and localization potentials, along with interchain and dopant interactions.

IT 150504-14-6

(elec. cond. of doped poly(3,4-alkylenedioxythiophene) films)

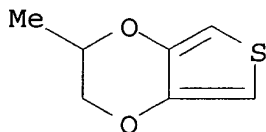
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



CC 36-5 (Physical Properties of Synthetic High Polymers)

IT 16919-18-9, Hexafluorophosphate 37181-39-8,

**Trifluoromethanesulfonate** 98837-98-0

(dopant; elec. cond. of doped poly(3,4-alkylenedioxythiophene) films)

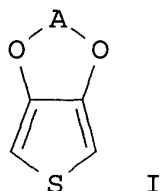
IT 126213-51-2, Poly(3,4-ethylenedioxythiophene) 150504-14-6

(elec. cond. of doped poly(3,4-alkylenedioxythiophene) films)

L70 ANSWER 16 OF 26 HCA COPYRIGHT 2003 ACS

131:265896 Manufacture of electrolytic capacitor including polymerization of thiophenes. Kudo, Yasuo; Akami, Kenji; Matsuya, Yasue (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11274006 A2 19991008 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-70142 19980319.

GI



AB The capacitor is manufd. by a process including (a) placing a pair of electrodes so that they face each other, (b) forming a dielec. layer between the electrodes, (c) forming a polymer involving thiophenes I [A = (substituted) alkylene] as repeating units by (chem. oxidn.) polymg. in an aq. medium in the presence of an anionic surfactant in the space between the electrodes. The polymn. may be emulsion polymn. in the presence of phenol derivs. or nitrobenzene derivs. The small-scale capacitor, with improved frequency characteristics and heat and moisture resistance, having large capacitance can be obtained by the process.

IT 150504-14-6P

(surfactant, dopant; manuf. of electrolytic capacitor involving polymn. in aq. medium in presence of anionic surfactant for formation of thiophene polymer solid electrolyte)

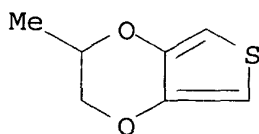
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



IC ICM H01G009-028

CC 76-10 (Electric Phenomena)

Section cross-reference(s): 35, 38, 46

IT 150504-14-6P

(surfactant, dopant; manuf. of electrolytic capacitor involving polymn. in aq. medium in presence of anionic surfactant for formation of thiophene polymer solid electrolyte)

IT 1321-69-3D, Sodium **naphthalenesulfonate**, alkyl-substituted  
25155-30-0

(surfactant, dopant; manuf. of electrolytic capacitor involving polymn. in aq. medium in presence of anionic surfactant for

formation of thiophene polymer solid electrolyte)

L70 ANSWER 17 OF 26 HCA COPYRIGHT 2003 ACS

131:5811 Temperature-dependent electrical conductivity of p-doped poly(3,4-ethylenedioxythiophene) and poly(3-alkylthiophene)s. Yamamoto, Takakazu; Abila, Mahmut; Shimizu, Takahisa; Komarudin, Dahrma; Lee, Bang-Lin; Kurokawa, Eriko (Research Laboratory Resources Utilization, Tokyo Institute Technology, Yokohama, 226, Japan). Polymer Bulletin (Berlin), 42(3), 321-327 (English) 1999. CODEN: POBUDR. ISSN: 0170-0839. Publisher: Springer-Verlag.

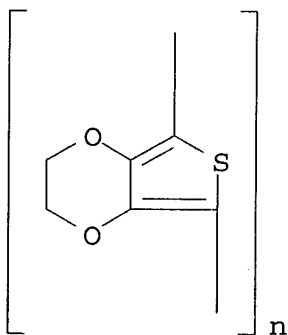
AB Temp.-dependent elec. cond. of the substituted polythiophenes poly(3,4-ethylenedioxythiophene) (PEDOT<sub>h</sub>) and head-to-tail type poly(3-alkylthiophene) (HT-P3RTh) was measured. The elec. cond. ( $\sigma$ ) of p-doped PEDOT<sub>h</sub> and HT-P3RTh obeys equations of a type,  $\ln \sigma = \ln \sigma_0 - (T_0/T)^{0.25}$ , with the  $T_0$  value of  $\approx 105$ - $107$  K.

IT 163359-60-2P 225518-50-3P

(iodine- and iron tetrachloride-doped; temp.-dependent elec. cond. of p-doped substituted polythiophenes)

RN 163359-60-2 HCA

CN Poly(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl) (9CI) (CA INDEX NAME)



RN 225518-50-3 HCA

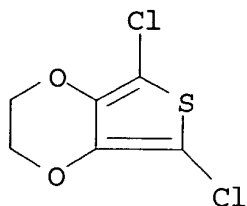
CN Thieno[3,4-b]-1,4-dioxin, 5,7-dichloro-2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 225518-49-0

CMF C6 H4 Cl2 O2 S



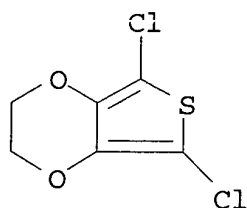


IT 225518-49-0P

(monomer; temp.-dependent elec. cond. of p-doped substituted polythiophenes)

RN 225518-49-0 HCA

CN Thieno[3,4-b]-1,4-dioxin, 5,7-dichloro-2,3-dihydro- (9CI) (CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 76

IT 110134-47-9, Poly(3-hexyl-2,5-thiophenediyl) 135899-67-1, 3-Thiophenepropanesulfonic acid homopolymer 216318-88-6, Poly(3-methyl-2,5-thiophenediyl)

(doped; temp.-dependent elec. cond. of p-doped substituted polythiophenes)

IT 163359-60-2P 225518-50-3P

(iodine- and iron tetrachloride-doped; temp.-dependent elec. cond. of p-doped substituted polythiophenes)

IT 225518-49-0P

(monomer; temp.-dependent elec. cond. of p-doped substituted polythiophenes)

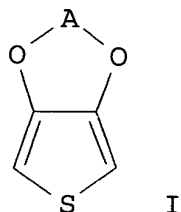
L70 ANSWER 18 OF 26 HCA COPYRIGHT 2003 ACS

130:59775 Electrically conductive composition and its manufacture.

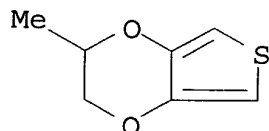
Kudou, Yasuo; Akami, Kenji; Kojima, Toshikuni; Matsuya, Yasue (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10308117 A2 19981117 Heisei, 9 pp. (Japanese).

CODEN: JKXXAF. APPLICATION: JP 1997-118929 19970509.

GI



- AB The compn. has a thiophene-based repeating unit I (A = alkylene) contg. (in)org. ions of an anionic surfactant as a dopant. The compn. is manufd. by chem. oxidative polymn. of the compn. using a transition metal-contg. compd. The compn. is manufd. by chem. oxidative polymn. of the compn. using the surfactant, an oxidizing agent comprising a transition metal-contg. inorg. acid, and optionally a phenol deriv. or a NO<sub>2</sub>-contg. compd. The manuf. method gives the compn. with improved elec. cond. and heat resistance at a high yield.
- IT **126235-11-8P**  
(manuf. of elec. conductive compn. contg. thiophene-based polymer)
- RN 126235-11-8 HCA
- CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl- (9CI) (CA INDEX NAME)



- IC ICM H01B001-12  
ICS C08G061-12; H01G009-028
- CC 76-2 (Electric Phenomena)  
Section cross-reference(s): 35
- IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene) **126235-11-8P**  
(manuf. of elec. conductive compn. contg. thiophene-based polymer)
- IT 126-92-1, Sodium 2-ethylhexylsulfate 25155-30-0, Sodium **dodecylbenzenesulfonate**  
(manuf. of elec. conductive compn. contg. thiophene-based polymer)
- L70 ANSWER 19 OF 26 HCA COPYRIGHT 2003 ACS
- 128:244450 Electropolymerization of 3,4-ethylenedioxythiophene and 3,4-ethylenedioxythiophenemethanol in the presence of **dodecylbenzenesulfonate**. Lima, Alexandre; Schottland, Philippe; Sadki, Said; Chevrot, Claude (Laboratoire de Recherche sur les Polymeres et Materiaux Electroactifs, Universite de Cergy

Pontoise, Cergy Pontoise, 95031, Fr.). Synthetic Metals, 93(1), 33-41 (English) 1998. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

- AB Electropolymn. of 3,4-ethylenedioxythiophene (EDT) and its hydroxymethyl deriv. (EDTM) was carried out in sodium **dodecylbenzenesulfonate** aq. soln. by cyclic voltammetry and chronoamperometry on a platinum electrode. PEDTM seems to be irreversibly damaged at lower potentials than PEDT (+1.2 V/SCE vs. +1.4 V/SCE, resp.). Moreover, SEM and surface profiling revealed a higher compaction for PEDTM films. Nevertheless, these films stopped growing for a charge of .apprx.80 mC cm<sup>-2</sup> as demonstrated by a UV-visible spectrophotometric study.

IT 204975-58-6P

(electrochem. prepn. and characterization of)

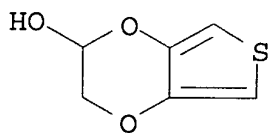
RN 204975-58-6 HCA

CN Thieno[3,4-b]-1,4-dioxin-2-ol, 2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204975-56-4

CMF C6 H6 O3 S

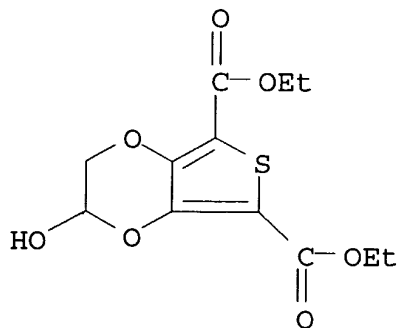


IT 204975-52-0P 204975-54-2P

(monomer intermediate; prepn. and electropolymn. of ethylenedioxythiophenemethanol)

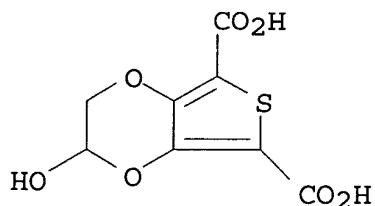
RN 204975-52-0 HCA

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-2-hydroxy-, diethyl ester (9CI) (CA INDEX NAME)



RN 204975-54-2 HCA

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-2-hydroxy- (9CI) (CA INDEX NAME)

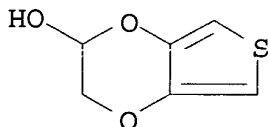


IT 204975-56-4P

(monomer; prepn. and electropolymn. of  
ethylenedioxythiophenemethanol)

RN 204975-56-4 HCA

CN Thieno[3,4-b]-1,4-dioxin-2-ol, 2,3-dihydro- (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 37, 72

IT Polymerization catalysts

Polymerization catalysts

(electrochem., **dodecylbenzenesulfonate**; for  
ethylenedioxythiophenes)

IT 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer  
204975-58-6P

(electrochem. prepn. and characterization of)

IT 925-47-3P, Diethyl thiodiglycolate 1822-66-8P, Diethyl  
3,4-dihydroxy-2,5-thiophenedicarboxylate 14282-56-5P

204975-52-0P 204975-54-2P

(monomer intermediate; prepn. and electropolymn. of  
ethylenedioxythiophenemethanol)

IT 204975-56-4P

(monomer; prepn. and electropolymn. of  
ethylenedioxythiophenemethanol)

IT 25155-30-0, Sodium **dodecylbenzenesulfonate**

(polymn. catalyst/polymer dopant; prepn. and electropolymn. of  
ethylenedioxythiophenes)

L70 ANSWER 20 OF 26 HCA COPYRIGHT 2003 ACS

128:222775 Electrochemical behavior of 3,4-ethylenedioxythiophene  
functionalized by a **sulfonate** group. Application to the  
preparation of poly(3,4-ethylenedioxythiophene) having permanent  
cation-exchange properties. Stephan, Olivier; Schottland, Philippe;  
Le Gall, Pierre-Yves; Chevrot, Claude; Mariet, Clarisse; Carrier,  
Michel (Laboratoire de Recherche sur les Polymeres et les Materiaux  
Electroactifs, EA 1389, Universite de Cergy-pontoise,  
Cergy-Pontoise, 95031, Fr.). Journal of Electroanalytical

Chemistry, 443(2), 217-226 (English) 1998. CODEN: JECHES. ISSN: 0368-1874. Publisher: Elsevier Science S.A..

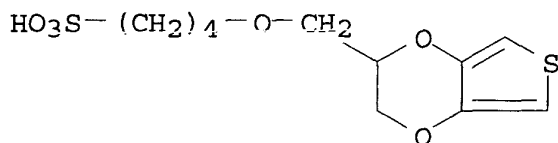
AB We report the synthesis of a new 3,4-ethylenedioxythiophene monomer functionalized by a **sulfonate** group. Its electrochem. polymn. in water allows the generation of water-sol. oligomers. Furthermore the electrochem. polymn. of an equimolar aq. soln. of this new monomer and the unsubstituted one produces a polymer film having permanent cation-exchange properties. This phenomenon has been investigated with hexamine ruthenium (III) and uranyl cationic species using electrochem. and radiochem. methods.

IT 204444-01-9P 204444-03-1P

(UV-visible spectra of aq. soln. contg. ethylenedioxythiophene functionalized by a **sulfonate** group)

RN 204444-01-9 HCA

CN 1-Butanesulfonic acid, 4-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-, sodium salt (9CI) (CA INDEX NAME)



● Na

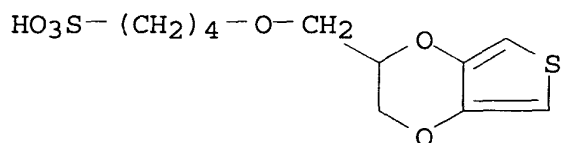
RN 204444-03-1 HCA

CN 1-Butanesulfonic acid, 4-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-, sodium salt, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204444-01-9

CMF C11 H16 O6 S2 . Na



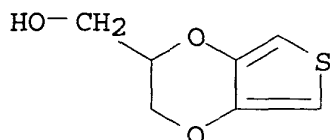
● Na

IT 146796-02-3P 146796-14-7P 204444-02-0P

(UV-visible spectra of aq. soln. contg. ethylenedioxythiophene functionalized by a **sulfonate** group)

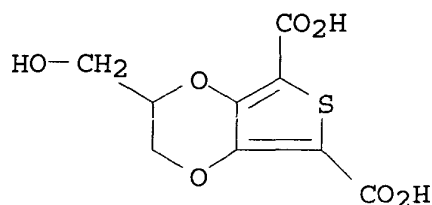
RN 146796-02-3 HCA

CN Thieno[3,4-b]-1,4-dioxin-2-methanol, 2,3-dihydro- (9CI) (CA INDEX NAME)



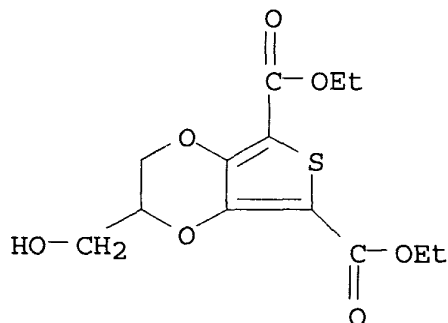
RN 146796-14-7 HCA

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-2-(hydroxymethyl)- (9CI) (CA INDEX NAME)



RN 204444-02-0 HCA

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-2-(hydroxymethyl)-, diethyl ester (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

ST **sulfonate** group functionalized ethylenedioxythiophene electrochem behavior; polyethylenedioxythiophene cation exchange property

IT Polymerization

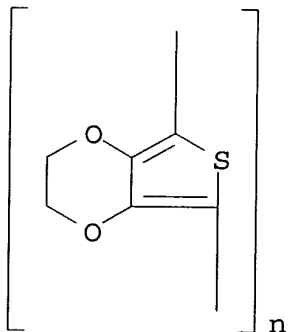
(electrochem.; of equimolar mixt. of ethylenedioxythiophene and ethylenedioxythiophene functionalized by a **sulfonate** group)

IT UV and visible spectra

(of aq. soln. contg. ethylenedioxythiophene functionalized by a **sulfonate** group)

IT 204444-01-9P 204444-03-1P 204444-04-2P

- (UV-visible spectra of aq. soln. contg. ethylenedioxythiophene functionalized by a **sulfonate** group)
- IT 95-92-1, Diethyl oxalate 123-93-3 3132-64-7  
(UV-visible spectra of aq. soln. contg. ethylenedioxythiophene functionalized by a **sulfonate** group)
- IT 925-47-3P 1822-66-8P 14282-56-5P **146796-02-3P**  
**146796-14-7P 204444-02-0P**  
(UV-visible spectra of aq. soln. contg. ethylenedioxythiophene functionalized by a **sulfonate** group)
- IT 126213-50-1, 3,4-Ethylenedioxythiophene  
(electrochem. behavior of ethylenedioxythiophene functionalized by a **sulfonate** group)
- L70 ANSWER 21 OF 26 HCA COPYRIGHT 2003 ACS
- 128:134182 Electroluminescent devices. Jonas, Friedrich; Elschner, Andreas; Wehrmann, Rolf; Quintens, Dirk (Bayer A.-G., Germany). Ger. Offen. DE 19627071 A1 19980108, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1996-19627071 19960705.
- AB Electroluminescent devices are described which employ a material(s) selected from polyfurans, polypyrroles, polyanilines, polythiophenes, and polypyridines as a conductor in the hole- and/or electron-injecting layers. The use of the polymers as conductors for this purpose is also described.
- IT **163359-60-2P**  
(electroluminescent devices with hole- and/or electron-injecting layers using polymeric conductors)
- RN 163359-60-2 HCA
- CN Poly(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl) (9CI) (CA INDEX NAME)



- IC ICM H05B033-02  
ICS C09K011-06; C08G061-12
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 38, 76
- IT 50851-57-5, Polystyrene **sulfonic** acid  
(electroluminescent devices with hole- and/or electron-injecting layers using polymeric conductors)
- IT 126213-51-2P, Poly(3,4-ethylenedioxythiophene) **163359-60-2P**

(electroluminescent devices with hole- and/or electron-injecting layers using polymeric conductors)

L70 ANSWER 22 OF 26 HCA COPYRIGHT 2003 ACS

127:364993 Solid electrolytic capacitors comprising a conductive layer made of a polymer of pyrrole or its derivative and their manufacture. Kudoh, Yasuo; Akami, Kenji; Kojima, Toshikuni; Matsuya, Yasue; Shimada, Hiroshi; Hayashi, Chiharu (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 803886 A2 19971029, 32 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1997-302334 19970404. PRIORITY: JP 1996-82320 19960404; JP 1996-244397 19960917.

AB In a solid electrolytic capacitor comprising a pair of electrodes with a dielec. film between them, in which .gtoreq.1 of the paired electrodes comprises a 1st conductive polymer layer made of a polymer of pyrrole or its deriv., the 1st conductive polymer layer is doped with a mixed dopant of a polyvalent anion and a monovalent anion which is a **sulfonate** ion dissocd. from an anionic surface-active agent. The conductive polymer layer may have a double-layer or multilayer structure in which a 2nd and/or 3rd conductive polymer layer is made of a doped polymer of a thiophene deriv.

IT **150504-14-6**, Poly(3,4-(1,2-propylene)dioxythiophene)  
(manuf. of solid electrolytic capacitors comprising conductive polymers)

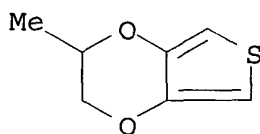
RN 150504-14-6 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-2-methyl-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126235-11-8

CMF C7 H8 O2 S



IC ICM H01G009-025

CC 76-2 (Electric Phenomena)

IT 30604-81-0, Polypyrrole 126213-51-2 **150504-14-6**,  
Poly(3,4-(1,2-propylene)dioxythiophene)  
(manuf. of solid electrolytic capacitors comprising conductive polymers)

IT 56-81-5, 1,2,3-Propanetriol, processes 57-55-6, 1,2-Propanediol, processes 64-17-5, Ethanol, processes 67-56-1, Methanol, processes 71-23-8, n-Propanol, processes 99-06-9, m-Hydroxybenzoic acid, processes 100-02-7, processes 107-21-1, 1,2-Ethanediol, processes 108-46-3, m-Hydroxyphenol, processes



108-95-2, Phenol, processes 767-00-0, p-Cyanophenol 1321-69-3D,  
 Sodium **naphthalenesulfonate**, alkyl derivs. 7429-90-5,  
 Aluminum, processes 7440-25-7, Tantalum, processes 7758-98-7,  
 Cupric sulfate, processes 10028-22-5, Ferric sulfate 25155-30-0,  
 Sodium **dodecylbenzenesulfonate** 70587-92-7  
 (manuf. of solid electrolytic capacitors comprising conductive  
 polymers contg.)

L70 ANSWER 23 OF 26 HCA COPYRIGHT 2003 ACS

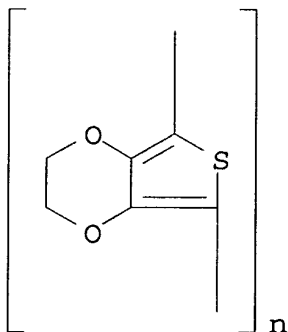
123:316993 Poly(3,4-ethylenedioxythiophene): conductive coatings,  
 technical applications and properties. Jonas, Friedrich; Krafft,  
 Werner; Muys, Bavo (BAYER AG, Krefeld, 47812, Germany).  
 Macromolecular Symposia, 100(5th European Polymer Federation  
 Symposium on Polymeric Materials, 1994), 169-73 (English) 1995.  
 CODEN: MSYMEC. ISSN: 1022-1360. Publisher: Huethig & Wepf.

AB Poly(3,4-ethylenedioxythiophene) (PEDT) is a new polymeric org.  
 conductor which, when combined with polystyrene **sulfonic**  
 acid, produces a system that can be processed as an aq. soln. and  
 yields effective antistatic coatings for films. The antistatic  
 effect is achieved with coating wts. of just a few mg PEDT/m<sup>2</sup>,  
 resulting in films with a surface resistivity of 10<sup>6</sup> .OMEGA./box..

IT 163359-60-2, Poly(3,4-ethylenedioxythiophene), sru  
 (conductive coatings)

RN 163359-60-2 HCA

CN Poly(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl) (9CI) (CA INDEX  
 NAME)



CC 42-10 (Coatings, Inks, and Related Products)

ST antistatic elec conductive coating; polyethylenedioxythiophene  
 conductive coating; **polystyrenesulfonic** acid  
 polyethylenedioxythiophene conductive coating

IT Coating materials  
 (antistatic, elec. conductive, poly(3,4-ethylenedioxythiophene)  
 contg. poly(p-**styrenesulfonic** acid))

IT Antistatic agents  
 (coatings, elec. conductive, poly(3,4-ethylenedioxythiophene)  
 contg. poly(p-**styrenesulfonic** acid))

IT 126213-51-2, Poly(3,4-ethylenedioxythiophene) 163359-60-2,  
 Poly(3,4-ethylenedioxythiophene), sru

(conductive coatings)

IT 28210-41-5, Poly(p-**styrenesulfonic** acid)  
(poly(3,4-ethylenedioxythiophene): conductive coatings)

L70 ANSWER 24 OF 26 HCA COPYRIGHT 2003 ACS

122:92705 Permanent antistatic primer layer.. Muys, Bavo; Quintens, Dirk; Boeykens, Jozef; Van Thillo, Etienne; Defieuw, Geert (Agfa-Gevaert Naamloze Vennootschap, Belg.). Eur. Pat. Appl. EP 602713 A1 19940622, 19 pp. DESIGNATED STATES: R: BE, DE, FR, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1993-203429 19931207. PRIORITY: EP 1992-203978 19921217.

AB There is provided a method for prepg. a biaxially oriented polyester sheet or web, with improved antistatic properties, comprising the steps of (i) stretching said polyester sheet or web 1st in one direction and 2nd in a direction perpendicular thereto (ii) coating said hydrophobic polyester sheet or web, either before stretching or between said 1st and 2nd stretching operation, on 1 or both sides, with a transparent antistatic primer layer, wherein the coating compn. of said transparent antistatic primer layer comprises (1) a dispersion of a polythiophene with conjugated polymer backbone and a polymeric polyanion compd. and (2) a latex polymer having hydrophilic functionality. The primer layer is coated from an aq. compn. and does not show a substantial change in resistivity depending on relative humidity or wet processing, e.g., for photog. material.

IT 160452-74-4P

(permanent antistatic primer layer for photog. film)

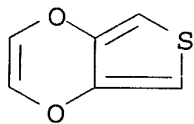
RN 160452-74-4 HCA

CN Thieno[3,4-b]-1,4-dioxin, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 272-72-0

CMF C6 H4 O2 S



IC ICM G03C001-89

ICS G03C001-93; C09K003-16; H01B001-12

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 50851-57-5, Polystyrene **sulfonic** acid

(permanent antistatic primer layer for photog. film)

IT 26022-07-1P, Butadiene-itaconic acid-methyl methacrylate copolymer  
27379-75-5P, Itaconic acid-methyl methacrylate-vinylidene chloride  
copolymer 86947-05-9P **160452-74-4P** 160452-75-5P

(permanent antistatic primer layer for photog. film)

L70 ANSWER 25 OF 26 HCA COPYRIGHT 2003 ACS

122:69675 Manufacturing a pattern of an electrically conductive polymer on a substrate surface and metalizing such a pattern. Mutsaers, Cornelius Marcus J.; De Leeuw, Dagobert M.; Simenon, Maurice Maria J. (N.V. Philips Gloeilampenfabrieken, Neth.). Eur. Pat. Appl. EP 615256 A2 19940914, 6 pp. DESIGNATED STATES: R: AT, DE, FR, GB, IT, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1994-200526 19940302. PRIORITY: EP 1993-200665 19930309.

AB A soln. of monomers, oligomers, or polymers and a suitable oxidn. agent can be stable if the soln. also comprises a base. By spin coating this soln. onto a substrate, a layer can be formed which, after patterned irradiation, yields a pattern of a doped conductive polymer which is formed in situ, the exposed and unexposed areas exhibiting a large difference in cond. A description is given of, inter alia, the patterned irradiation of a layer of 3,4-ethylenedioxythiophene. If desired, the conductive polymer pattern can subsequently be metalized in an electroplating bath. The method provides, inter alia, a simple process of manufg. metal patterns on insulating substrates, such as printed circuit boards.

IT 126213-54-5P  
(formation of elec. conductive patterns of)

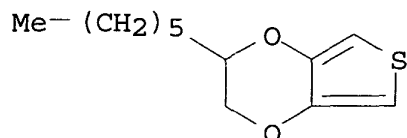
RN 126213-54-5 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2-hexyl-2,3-dihydro-, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 126213-53-4

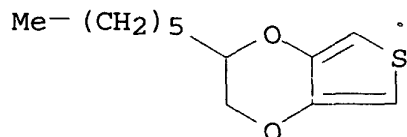
CMF C12 H18 O2 S



IT 126213-53-4  
(patterned polymn. of monomers in formation of elec. conductive polymer patterns)

RN 126213-53-4 HCA

CN Thieno[3,4-b]-1,4-dioxin, 2-hexyl-2,3-dihydro- (9CI) (CA INDEX NAME)



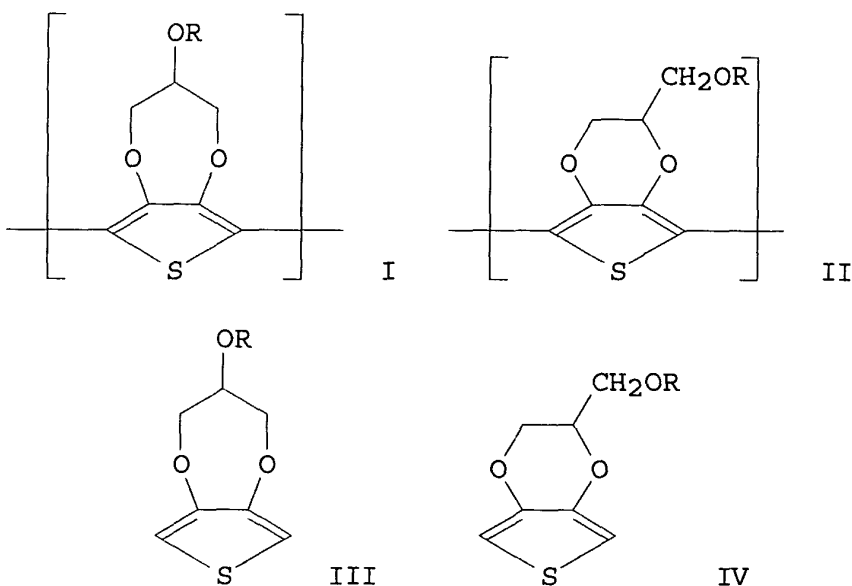
IC ICM H01B001-12

ICS C08G061-12; H05K009-00  
 CC 76-2 (Electric Phenomena)  
 IT 126213-51-2P, Poly-3,4-ethylenedioxythiophene **126213-54-5P**  
 (formation of elec. conductive patterns of)  
 IT 114504-10-8, Iron(III) tris(**toluenesulfonate**)  
 (oxidizing agent; in formation of elec. conductive polymer  
 patterns)  
 IT 126213-50-1, 3,4-Ethylenedioxythiophene **126213-53-4**  
 (patterned polymn. of monomers in formation of elec. conductive  
 polymer patterns)

L70 ANSWER 26 OF 26 HCA COPYRIGHT 2003 ACS

118:179680 Substituted 3,4-polymethylenedioxythiophenes, and polymers  
 and electroresponsive devices made therefrom. Blohm, Margaret L.;  
 Pickett, James E.; VanDort, Paul C. (General Electric Co., USA).  
 U.S. US 5111327 A 19920505, 8 pp. (English). CODEN: USXXAM.  
 APPLICATION: US 1991-663524 19910304.

GI



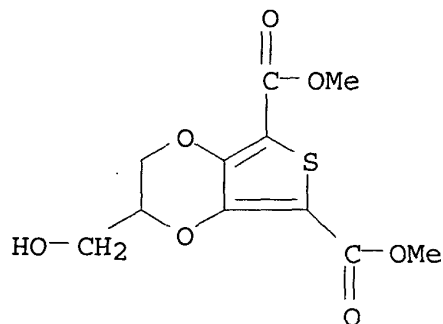
AB The title polymers, which exhibit useful conductive and  
 electrochromic properties, comprise chem. combined repeating units  
 described by the general formulas I and/or II (R = H or a C1-18 org.  
 radical); the monomers described by the general formulas III and IV  
 are also claimed. Use of the polymers in electromagnetic shielding,  
 optical switches, and smart windows is indicated.  
 IT **146796-12-5P 146796-13-6P 146796-14-7P**

**146796-15-8P**

(prepn. and reaction of, in conductive and electrochromic polymer precursor prepn.)

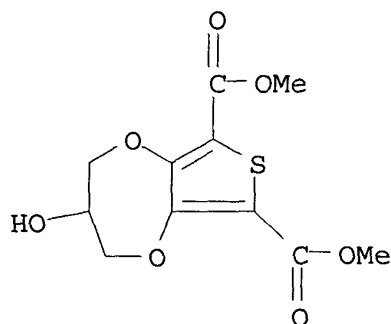
RN 146796-12-5 HCA

CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-2-(hydroxymethyl)-, dimethyl ester (9CI) (CA INDEX NAME)



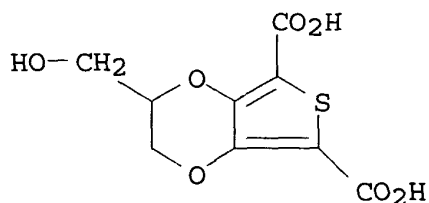
RN 146796-13-6 HCA

CN 2H-Thieno[3,4-b][1,4]dioxepin-6,8-dicarboxylic acid, 3,4-dihydro-3-hydroxy-, dimethyl ester (9CI) (CA INDEX NAME)



RN 146796-14-7 HCA

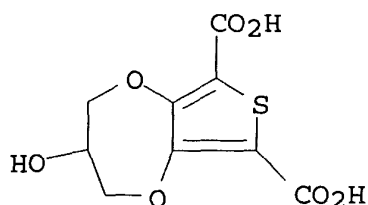
CN Thieno[3,4-b]-1,4-dioxin-5,7-dicarboxylic acid, 2,3-dihydro-2-(hydroxymethyl)- (9CI) (CA INDEX NAME)



RN 146796-15-8 HCA

CN 2H-Thieno[3,4-b][1,4]dioxepin-6,8-dicarboxylic acid,

3,4-dihydro-3-hydroxy- (9CI) (CA INDEX NAME)

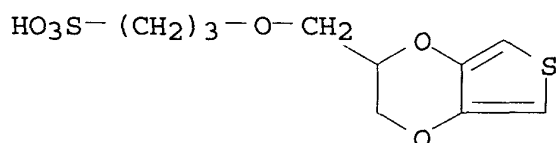


IT 146796-10-3P 146796-11-4P

(prepn. and reaction of, in prepn. of polymers exhibiting conductive and electrochromic properties)

RN 146796-10-3 HCA

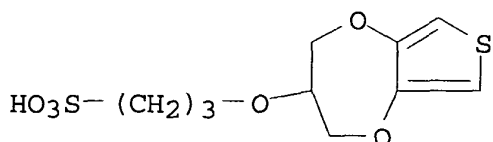
CN 1-Propanesulfonic acid, 3-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-, sodium salt (9CI) (CA INDEX NAME)



● Na

RN 146796-11-4 HCA

CN 1-Propanesulfonic acid, 3-[(3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepin-3-yl)oxy]-, sodium salt (9CI) (CA INDEX NAME)



● Na

IT 146796-02-3P 146796-03-4P 146796-04-5P

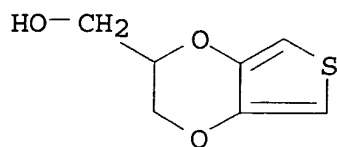
146796-05-6P 146796-06-7P 146796-07-8P

146796-08-9P 146796-09-0P

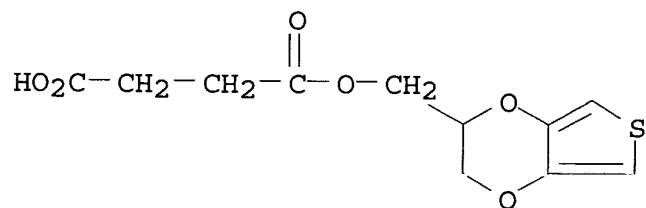
(prepn. and use of, in prepn. of polymers exhibiting conductive and electrochromic properties)

RN 146796-02-3 HCA

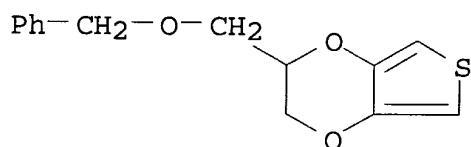
CN Thieno[3,4-b]-1,4-dioxin-2-methanol, 2,3-dihydro- (9CI) (CA INDEX NAME)



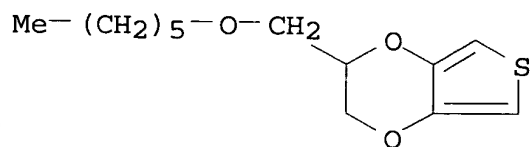
RN 146796-03-4 HCA  
 CN Butanedioic acid, mono[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methyl] ester (9CI) (CA INDEX NAME)



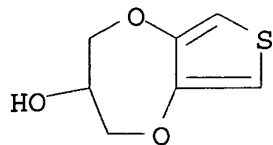
RN 146796-04-5 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2-[(phenylmethoxy)methyl]- (9CI) (CA INDEX NAME)



RN 146796-05-6 HCA  
 CN Thieno[3,4-b]-1,4-dioxin, 2-[(hexyloxy)methyl]-2,3-dihydro- (9CI) (CA INDEX NAME)

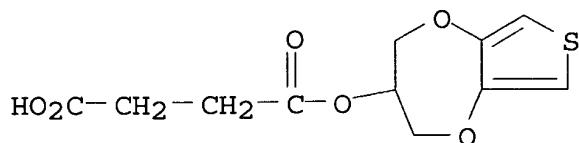


RN 146796-06-7 HCA  
 CN 2H-Thieno[3,4-b][1,4]dioxepin-3-ol, 3,4-dihydro- (9CI) (CA INDEX NAME)



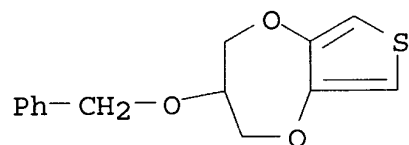
RN 146796-07-8 HCA

CN Butanedioic acid, mono(3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepin-3-yl) ester (9CI) (CA INDEX NAME)



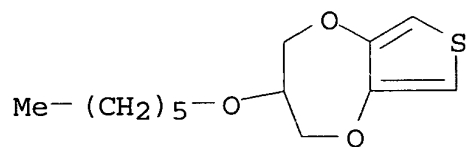
RN 146796-08-9 HCA

CN 2H-Thieno[3,4-b][1,4]dioxepin, 3,4-dihydro-3-(phenylmethoxy) - (9CI) (CA INDEX NAME)



RN 146796-09-0 HCA

CN 2H-Thieno[3,4-b][1,4]dioxepin, 3-(hexyloxy)-3,4-dihydro- (9CI) (CA INDEX NAME)



IT 146822-95-9P

(prepn. of doped)

RN 146822-95-9 HCA

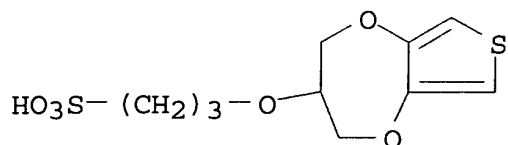
CN 1-Propanesulfonic acid, 3-[(3,4-dihydro-2H-thieno[3,4-b][1,4]dioxepin-3-yl)oxy]-, sodium salt, polymer with sodium 3-[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methoxy]-1-propanesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 146796-11-4



CMF C10 H14 O6 S2 . Na

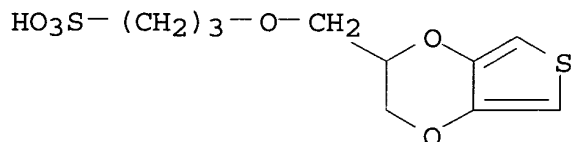


● Na

CM 2

CRN 146796-10-3

CMF C10 H14 O6 S2 . Na



● Na

IC ICM G02F001-01

ICS C08F028-06

NCL 526256000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

IT 429-42-5, Tetrabutylammoniumtetrafluoroborate 77214-82-5,

Iron(III)-p-toluenesulfonate

(polymers doped with, exhibiting conductive and electrochromic properties)

IT 146796-12-5P 146796-13-6P 146796-14-7P  
146796-15-8P

(prepn. and reaction of, in conductive and electrochromic polymer precursor prepn.)

IT 146796-10-3P 146796-11-4P

(prepn. and reaction of, in prepn. of polymers exhibiting conductive and electrochromic properties)

IT 146796-02-3P 146796-03-4P 146796-04-5P

146796-05-6P 146796-06-7P 146796-07-8P

146796-08-9P 146796-09-0P

(prepn. and use of, in prepn. of polymers exhibiting conductive and electrochromic properties)